IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

UNITED STATES OF AMERICA,	)	
Plaintiff,	)	
v.	)	
ENBRIDGE ENERGY, LIMITED PARTNERSHIP,	)	
ENBRIDGE PIPELINES (LAKEHEAD) L.L.C.,	)	**Civil Action No. 1:16-cv-914**
ENBRIDGE ENERGY PARTNERS, L.P.,	)	
ENBRIDGE ENERGY MANAGEMENT, L.L.C.,	)	**Judge Gordon J. Quist**
ENBRIDGE ENERGY COMPANY, INC.,	)	
ENBRIDGE EMPLOYEE SERVICES, INC.,	)	
ENBRIDGE OPERATIONAL SERVICES, INC.,	)	
ENBRIDGE PIPELINES INC., and	)	
ENBRIDGE EMPLOYEE SERVICES CANADA INC.,	)	
Defendants.	)	

CONSENT DECREE

REVISED FOLLOWING PUBLIC COMMENT PERIOD

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I. BACKGROUND

a. Plaintiff United States of America, on behalf of the United States Environmental Protection Agency ("EPA") and the United States Coast Guard ("USCG"), filed this Consent Decree concurrently with a complaint against nine related parties – namely, Enbridge Energy, L.P., Enbridge Pipelines (Lakehead) L.L.C., Enbridge Energy Partners, L.P., Enbridge Energy Management, L.L.C., Enbridge Energy Company, Inc., Enbridge Employee Services, Inc., Enbridge Operational Services, Inc., Enbridge Pipelines Inc. and Enbridge Employee Services Canada Inc. (hereinafter "Enbridge" or "Defendants").

b. The Complaint alleges that Defendants own and operate the Enbridge Mainline System – one of the world's largest pipeline systems with more than 3,000 miles of pipeline corridors in the United States and Canada. According to Enbridge, the Mainline System is the single largest conduit of liquid petroleum into the United States, delivering on-average 1.7 million barrels of oil into the U.S. each day – a figure that accounts for 23% of the U.S. crude oil imports. The portion of the Mainline System within the United States is known as the Lakehead Pipeline System ("Lakehead System") and includes a network of pipelines that are grouped within right-of-ways that collectively span 1,900 miles from the international border near Neche, North Dakota to delivery points in the Midwest, New York, and Ontario. The products transported by these pipelines allegedly include natural gas liquids and a variety of light and heavy crude oils.

c. The Complaint asserts claims against Enbridge under Sections 309 and 311 of the Clean Water Act ("CWA"), 33 U.S.C. §§ 1319 and 1321, and Section 2702 of the Oil Pollution Act ("OPA"), 33 U.S.C. § 2702, with respect to two oil spills that occurred in 2010 as the result of unlawful discharges of oil from two Lakehead System pipelines ("2010 Oil Spills"). The Complaint alleges that the first oil spill occurred when Lakehead System Line 6B ("Line

6B") ruptured near Marshall, Michigan on July 25, 2010 and, over the course of two days, repeatedly discharged harmful quantities of oil to navigable waters of the United States, including Talmadge Creek and the Kalamazoo River, and adjoining shorelines ("Line 6B Discharges"). The Complaint alleges that the second spill occurred two months later when another Lakehead System pipeline – known as Line 6A – developed a large leak near Romeoville, Illinois and discharged harmful quantities of oil to navigable waters of the United States, including an unnamed tributary to the Des Plaines River, and adjoining shorelines ("Line 6A Discharges"). Enbridge contends that the Romeoville Discharge was caused by a third-party water pipeline failure that damaged Line 6A.

d. The Complaint alleges that the Line 6B Discharges resulted in the release of at least 20,082 barrels of oil. The Complaint further alleges that, as a result of such releases, the Kalamazoo River was closed in places over a three-year period while Enbridge engaged in an extensive cleanup effort in accordance with a series of orders issued by EPA under Section 311(c) of CWA, 33 U.S.C. § 1321(c), starting with an initial order issued on July 26, 2010. Such cleanup efforts included, among other things, dredging sections of the river as far downstream as 38 miles from the confluence of Talmadge Creek.

e. As a result of removal actions conducted by Enbridge pursuant to administrative orders issued by EPA, portions of the Kalamazoo River were re-opened for recreational use beginning in April of 2012. By June 21, 2012, remaining sections of the Kalamazoo River were re-opened, although portions of the Kalamazoo River were closed again during dredging activities in 2013 and 2014. All portions of the Kalamazoo River have been open since October of 2014.

f. In the fall of 2014, Enbridge completed removal activities required under a 2013 EPA Order that required, among other things, dredging in the Kalamazoo River. After Enbridge completed that work, EPA transitioned the lead for continuing removal activities to the State of Michigan. Pursuant to a Consent Judgment in *Michigan Dep't. of Envtl. Quality v. Enbridge Energy Partners, L.P. et al.*, 15-1411-CE (Calhoun County Circuit Court May 13, 2015), several of the Defendants committed, among other things, to perform additional response actions with respect to Line 6B Discharges. That Consent Judgment also recognizes that Enbridge entities have reimbursed approximately $10 million in expenses incurred by the Michigan Department of Environmental Quality and other state agencies for response activities, including emergency response, and natural resource damage assessment activities.

g. As a result of the Line 6A Discharges and the Line 6B Discharges, Enbridge has incurred substantial removal costs and expenses, including costs and expenses associated with removing oil and oil-contaminated materials from public and private property, including properties owned by Enbridge.

h. The Defendants have previously resolved claims for natural resources damages ("NRD") resulting from the Line 6B Discharges through two interrelated settlements in *Michigan Dep't. of Envtl. Quality v. Enbridge Energy Partners, L.P. et al.*, 15-1411-CE (Calhoun County Circuit Court May 13, 2015), and *United States et al. v. Enbridge Energy, Ltd. P'ship, et al.*, Civil Action No. 1:15-cv-00590-GJQ (December 3, 2015). Pursuant to these settlements, Enbridge will complete or has completed restoration projects along the Kalamazoo River. Projects that will be completed include, without limitation: (i) restoring and monitoring of 320 acres of wetlands impacted by the Line 6B Discharges and response activities, (ii) permanently restoring, creating or otherwise protecting at least 300 additional acres of wetland habitat in

compensation for wetland losses, and (iii) conducting further studies and evaluations of waters affected by the Line 6B Discharges and restoration of functions provided by large woody debris removed from the Kalamazoo River as part of the removal actions. Enbridge has also provided funding to the State for monitoring of fish contamination, fish populations and macroinvertebrate populations along Talmadge Creek and the Kalamazoo River. Pursuant to these settlements, Enbridge has paid approximately $4 million that will be used to fund additional restoration projects that will be implemented by natural resource trustees, reimburse natural resource damage assessment costs of federal and tribal trustees, and support ongoing restoration planning activities of natural resource trustees.

i. To date, the USCG has billed Enbridge approximately $57.8 million in costs related to the Line 6B Discharges, which includes most (but not all) of the costs charged against the Oil Spill Liability Trust Fund ("Fund") as of October 1, 2015. Enbridge fully paid all bills received from USCG with respect to the Line 6B Discharges.

j. The Complaint alleges that the Line 6A Discharges resulted in the release of at least 6,427 barrels of oil. Enbridge undertook efforts to clean up the spill, including the removal of oil from contaminated storm sewers and from a publicly-owned treatment works.

k. In connection with the discharges from Line 6A, the USCG has billed Enbridge for $659,027 in removal costs, which includes all of the costs charged against the Fund as of October 1, 2015. Enbridge fully paid all such bills.

l. On September 30, 2013, the NTSB issued a Pipeline Accident Brief concerning the Line 6A Discharges. The NTSB determined that the probable cause of the Line 6A Discharges was erosion caused by water jet impingement from a leaking 6-inch diameter water pipe located 6 inches below the Line 6A pipe. The NTSB further determined that the

interruption of the cathodic protection currents by the close proximity of the improperly installed water pipe contributed to the Line 6A Discharges. Enbridge was not the owner or operator of the water pipe referred to in the NTSB Accident Brief. The NTSB did not issue any safety recommendations to Enbridge or any other entity concerning the Line 6A Discharges.

m. Subsequent to the 2010 Oil Spills, Enbridge undertook a number of steps to reduce the potential for future oil discharges from its pipelines and improve the safety and integrity of the Lakehead System. Among other things, Enbridge undertook the following actions since the 2010 Oil Spills:

(1) *Lakehead Plan*: Pursuant to a corrective action order issued by the Pipeline and Hazardous Materials Safety Administration "(PHMSA"), Enbridge developed and implemented the "Lakehead Plan," which outlines specific actions and timelines for safety improvements to specified pipelines within the Lakehead System, including procedures for ongoing inspection, replacement, and testing of Enbridge's lines.

(2) *Pipeline Replacement*: After the Line 6B Discharges, rather than repairing Line 6B, Enbridge decided to replace the pipeline, which had been in operation for 43 years. As a result, in 2014, Enbridge completed construction of a new 285-mile pipeline ("New Line 6B") to replace the entirety of original Line 6B ("Original Line 6B") between Griffith, Indiana and the international border near Sarnia, Ontario. Enbridge thereafter ceased operation of Original Line 6B and removed remaining oil from Original Line 6B.

(3) *In-line Inspections*. After the 2010 Oil Spills, Enbridge substantially expanded, and improved upon, its use of in-line inspection ("ILI") technology for maintaining the Lakehead System pipelines. ILI technology involves the

insertion of an ILI tool – commonly called a "pig" – into a pipeline for the purpose of sizing and identifying flaws in the pipe, such as cracks or corrosion, that need to be excavated and repaired. After 2010, Enbridge increased the frequency and type of its ILI Tool Runs, as well as boosted the number of excavations conducted as a result of such investigations. As of September of 2014, Enbridge estimated that it had completed 180 ILI runs since the 2010 Oil Spills, resulting in 5,700 excavations on the Lakehead System.

(4) *Hydrostatic Pressure Testing*: In 2012, after a third oil transmission pipeline known as Line 14 on the Lakehead System ruptured in a pasture near Grand Marsh, Wisconsin, PHMSA ordered Enbridge to implement various remedial measures, including hydrostatic pressure testing of the pipeline. Such testing, which is mandatory for all new pipelines, involves pressurizing the pipeline with water to a point where the pipeline will rupture if it contains unrepaired or undiscovered features with a burst-pressure at or near the maximum test pressure. Enbridge completed hydrostatic pressure testing of 196 miles of Line 14 in 2012 without experiencing a leak or rupture. In accordance with another PHMSA corrective action order, Enbridge used hydrostatic pressure testing to confirm the integrity of 326 miles of Lakehead System Line 2 oil transmission pipeline between Neche, North Dakota and Superior, Wisconsin in 2015.

(5) *Improvements to Emergency Response*: Enbridge represents that it spent $50 million since the 2010 Oil Spills to improve equipment, training, and overall response in the event of a failure of a Lakehead System pipeline. Most recently, in September of 2015, hundreds of personnel from Enbridge, EPA, and USCG, together with state and local officials, conducted a full-scale exercise to test plans to respond to a spill in the Straits of Mackinac. Additionally:

a) Enbridge revised its emergency response planning documents, known as Integrated Contingency Plans (ICPs), which were approved by PHMSA. Enbridge also developed Tactical Response plans for specific areas within the Lakehead System, including the Straits of Mackinac.

b) Enbridge represents that it has implemented the spill response training recommended by the U.S. Federal Emergency Management Agency ("FEMA") to improve the coordination between Enbridge and government emergency responders. Such training includes, among other things, Incident Command System ("ICS") Level 100 through Level 300 training for all appropriate personnel listed in the ICPs, including employees assigned to incident management teams ("IMT") and senior managers who may serve as a qualified individual in the event of a spill.

c) Enbridge represents that it purchased additional emergency response equipment to enhance Enbridge's existing equipment inventories across the Lakehead System. Newly available equipment includes incident command post trailers, decontamination trailers, work boats, submerged oil trailers, portable dam systems, tanks, boom, skimmers, and rig mats. Enbridge also contracted with additional emergency response contractors as reflected in Enbridge's revised ICPs.

d) Enbridge reorganized its emergency management department to improve its emergency planning and response capabilities. Enbridge represents that it has hired approximately 20 additional staff to support emergency response actions, including four Emergency Response Coordinators within its U.S. Operations. Enbridge formed an internal Emergency Response Advisory Team

that meets quarterly, to ensure that emergency preparedness and planning is consistent within the Enbridge system and to share lessons learned across its pipelines.

e) Enbridge has conducted outreach to the public and has developed publicly available training materials in an effort to better inform the public of the warning signs of a leak, potential hazards, the location of Enbridge pipelines, and the methods of notifying Enbridge of a leak. Enbridge represents that it conducted 250 community outreach sessions in 2013 alone.

(6) *Installation of Valves*: Pursuant to a Corrective Action Order issued by PHMSA, Enbridge installed 55 new remotely controlled valves that would reduce the impacts of a potential oil spill on certain water crossings.

(7) *Improved Environmental Management:* Enbridge implemented measures to improve its internal management and oversight of the safety and reliability of its entire pipeline system. Specifically:

a) Enbridge created the Operations and Integrity Committee and the Safety and Reliability Committee. Enbridge senior executives participate in both of these committees.

b) Enbridge created the role of Vice President, Enterprise Safety and Operational Reliability, which directs and oversees a dedicated team to support and direct company-wide safety and reliability.

(8) *Pipeline Control:* Enbridge established a Pipeline Control department with increased staffing dedicated to leak detection, which includes on-shift personnel who are dedicated to technical support of pipeline operators and to aid in the

analysis of leak detection alarms. In addition, Enbridge has revised training requirements for leak detection analysts, pipeline operators, and other decision support staff, and currently requires operators to receive training that addresses issues such as in pipeline hydraulics, column separation analysis, incident investigation, emergency response, fatigue management, and leak detection training. Enbridge also requires semi-annual control room personnel team training that includes a focus on allowing operators to recognize and respond to unexpected conditions that may arise on the Enbridge system, including leak alarms originating from the SCADA or MBS systems.

(9) *Straits of Mackinac:* Enbridge has taken a number of steps to improve spill prevention on Line 5, including the Line 5 crossing at the Straits of Mackinac. These steps include: 1) conducting regular inspections using ILIs, divers, and remotely-operated vehicles to confirm the integrity of Line 5 in the Straits; 2) increasing the frequency of inspections and pipeline repairs above and beyond what is otherwise required by law; and 3) partnering with Michigan Technological University to develop new technology that will aid in inspecting the line.

n. In 2015, Enbridge Pipelines, Inc. ("EPI") transferred to Enbridge Employee Services Canada Inc. ("EESCI") property owned by EPI in 2010; EESCI is a successor and assign of EPI.

o. Enbridge acknowledges that EPA, in its discretion, (1) may share with PHMSA any information and proposed or final submittals provided by Enbridge or the Independent Third Party under the Consent Decree, and (2) may seek technical assistance from, and otherwise consult with, PHMSA concerning matters under the Consent Decree.

p. The Parties now wish to resolve the United States' claims in the Complaint relating to the 2010 Oil Spills by, among other things, Enbridge (1) paying civil penalties, (2) reimbursing additional removal costs that have been incurred by the United States relating to the Line 6B Discharges, and (3) undertaking the measures set forth in Section VII of this Decree. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and will avoid litigation between the Parties and that this Consent Decree is fair, reasonable, and in the public interest.

THEREFORE, before the taking of any testimony, without the adjudication or admission of any issue of fact or law, and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows:

II. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of the United States' claims in this action pursuant to Sections 309(b), 311(b)(7)(E) and (n) of the CWA, 33 U.S.C. §§ 1319(b), 1321(b)(7)(E) and (n), and Section 1017(b) of OPA, 33 U.S.C. § 2717(b), and 28 U.S.C. §§ 1331, 1345, 1355.

2. Venue is proper in the Western District of Michigan under Sections 309(b) and 311(b)(7)(E) of the CWA, 33 U.S.C. §§ 1319(b) and 1321(b)(7)(E), Section 1017(b) of OPA, 33 U.S.C. § 2717(b), and 28 U.S.C. §§ 1391 and 1395 because claims asserted in the Complaint in this action arose in this district and Enbridge is located and doing business in this district.

3. For purposes of this Decree, or any action to enforce this Decree, Enbridge consents to the Court's jurisdiction over this Decree (or action to enforce the Decree) and over themselves, and they consent to venue in this judicial district.

4. For purposes of this Consent Decree, Enbridge agrees that the Complaint states claims upon which relief may be granted pursuant to Sections 301 and 311 of the Clean Water Act, 33 U.S.C. §§ 1311 and 1321, and Section 2702 of OPA, 33 U.S.C. § 2702.

5. Notice of the commencement of this action has been given to the States of Michigan and Illinois, as required by CWA Section 309(b), 33 U.S.C. § 1319(b).

III. APPLICABILITY

6. The obligations of this Consent Decree apply to and are binding upon the United States, and upon Enbridge and any successors, assigns, or other entities or persons otherwise bound by law. Each of the Defendants shall be jointly and severally liable for all of Enbridge's obligations under this Consent Decree.

7. No transfer of ownership or operation of any portion of the Lakehead System, whether in compliance with the procedures of this Paragraph or otherwise, shall relieve Enbridge of its obligation to ensure that the terms of the Decree are implemented. At least 30 Days prior to such transfer, Enbridge shall provide a copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer, together with a copy of the proposed written agreement, to EPA, the United States Attorney for the Western District of Michigan, and the United States Department of Justice, in accordance with Section XVI (Notices). Any attempt to transfer ownership or operation of the Lakehead System without complying with this Paragraph constitutes a violation of this Decree, provided, however, that in the case of any transfer to an entity controlled by Enbridge, Enbridge may satisfy the prior notification requirement of this Paragraph by providing notice to EPA and the United States, in accordance with Section XVI (Notices), at least 30 Days prior to the transfer, without providing a copy of the transfer agreement.

8. Enbridge shall provide a copy of this Consent Decree to all officers, employees, agents and contractors whose duties might reasonably include compliance with any provision of this Decree. After the Effective Date, Enbridge shall require compliance with the Consent Decree as a material term of any contract with a third party whose duties might include compliance with any provision of this Decree. Likewise, Enbridge shall require such third-parties to flow down the same requirement to subcontractors whose duties might include compliance with any provision of this Decree.

9. In any action to enforce this Consent Decree, Enbridge shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree.

IV. DEFINITIONS

10. Terms used in this Consent Decree that are defined in the CWA, or in regulations promulgated thereunder, shall have the meanings assigned to them in the Act or such regulations, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Consent Decree, the following definitions shall apply:

a. "2010 Oil Spills" shall mean the Line 6A Discharges and Line 6B Discharges as defined below.

b. "Area Contingency Plan" shall have the meaning set forth in the National Contingency Plan at 40 C.F.R. § 300.5.

c. "Axially-Aligned Crack" shall mean any type of Crack feature that is oriented in the direction of the pipeline's axis as opposed to the pipeline's circumference.

d. "Axial Grooving" and "Axial Slotting" shall mean any metal loss feature with a width less than 10 millimeters and a length greater than 30 millimeters.

e. "Batch Pig" shall mean a type of device generally known as a "pig" that is inserted into a pipeline for the purpose of separating different batches or shipments of oil within the pipeline.

f. "Column Separation" shall mean the condition where a pipeline segment is not entirely filled with liquid or is partly void.

g. "Community Outreach" shall mean Enbridge's program to inform and encourage public participation and education regarding Enbridge's Lakehead System. The term "public" shall include citizens, entities or organized groups that may be impacted by any Lakehead pipeline.

h. "Complaint" shall mean the Complaint filed by the United States in this action.

i. "Consent Decree" or "Decree" shall mean this Decree and all Appendices attached hereto (listed in Section XXV).

j. "Control Room" shall mean any operations center where Lakehead System pipelines are remotely monitored, operated and controlled by personnel using a Supervisory Control and Data Acquisition System, including the operations center in Edmonton, Alberta, Canada.

k. "Corrosion feature" shall mean any feature on a pipeline detected by any tool, field measurement device, or other field observation that detects metal loss due to corrosion; provided, however, that for purposes of this Consent Decree, "corrosion features" shall not include any feature that Enbridge is able to determine reflects metal loss that is attributable to a grinding repair rather than to corrosion.

l. "Crack feature" shall mean any feature on a pipeline detected by any tool, field measurement device, or other field observation that detects any crack or crack-like feature on the pipeline, whether the Feature Type is classified as crack-like, crack field, notch-like, surface-breaking lamination, linear indication, seam-weld manufacturing anomaly, hook cracks, or any other label denoting a crack or cluster of cracks. In addition, for purposes of this Consent Decree, Crack features shall be deemed to include Axial Slotting features, Axial Grooving features, selective seam Corrosion features and features identified in ILI reports as Seam Weld Anomaly A/B.

m. "Day" shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Consent Decree, where the last Day would fall on a Saturday, Sunday, or U.S. federal holiday, the period shall run until the close of business of the next business day.

n. "Defendants" shall have the same meaning as the term "Enbridge" as defined below.

o. "Dig List" shall mean the list of Crack features, Corrosion features and Geometric features required to be excavated in accordance with Section VII.D.

p. "Effective Date" shall have the definition provided in Section XVII.

q. "Enbridge" shall mean Enbridge Energy, L.P., Enbridge Pipelines (Lakehead) L.L.C., Enbridge Energy Partners, L.P., Enbridge Energy Management, L.L.C., Enbridge Energy Company, Inc., Enbridge Employee Services, Inc., Enbridge Operational Services, Inc., Enbridge Pipelines Inc., Enbridge Employee Services Canada Inc., and any of their successors and assigns.

r. "EPA" shall mean the United States Environmental Protection Agency and any of its successor departments or agencies.

s. "Established Maximum Operating Pressure" or "Established MOP" or "MOP" shall mean, with respect to each Lakehead System Pipeline segment, the MOP value listed for that segment in column C of the spreadsheet located at https://www.epa.gov/enbridge-spill-michigan/enbridge-revised-maximum-operating-pressure-values. For purposes of identifying the MOP value applicable to any particular pipeline segment, pipeline segments are identified (in column B of the above-cited spreadsheet) by the milepost location at the beginning of the segment, and each pipeline segment includes the entire distance between the listed milepost location and the milepost location listed for the next pipeline segment identified on the spreadsheet.

t. "Feature Requiring Excavation" shall have the meaning set forth in Paragraph 36.

u. "Field Burst Pressure" shall mean, with respect to each Crack feature and each Corrosion feature located on any section of a Lakehead System Pipeline that is excavated, whether for repair or mitigation of features, investigation of features or otherwise, the Predicted Burst Pressure of such feature calculated based on field measurements of feature length and depth obtained during examination of the feature at the time of the excavation.

v. "Future Removal Costs" shall mean all costs, including direct and indirect costs, incurred and paid by the United States in responding to the Line 6B Discharges that were, or will be, charged against the Oil Spill Liability Trust Fund after October 1, 2015.

w. "Geometric feature" shall mean any feature that involves deformation of the pipe as defined in 4.28 of API 1163 (1^{st} Edition), including any bend, buckle, dent, ovality,

ripple, wrinkle or other change that affects the roundness of the pipe's cross section or straightness of the pipe.

x. "High Consequence Area" or "HCA" shall have the meaning set forth in 49 C.F.R. § 195.450.

y. "ILI Burst Pressure" shall mean, with respect to each Crack feature and each Corrosion feature, the Predicted Burst Pressure of such feature calculated based on ILI measurements of feature length and depth.

z. "Initial Linefill" shall mean the initial process of starting pumps and filling a new pipeline with oil before deliveries of product can commence.

aa. "Interest" shall mean the interest rate specified in 28 U.S.C. § 1961 as of the date interest accrues under the Consent Decree.

bb. "Joint" shall refer to a single length of pipe, typically 40 feet or less, between two adjacent girth welds.

cc. "Lakehead ICPs" shall mean the integrated contingency plans for Lakehead System Pipelines.

dd. "Lakehead System" shall mean the portion of the Mainline System within the United States that is comprised of fourteen pipelines – Lines 1, 2B, 3, 4, 5, 6A, 6B, 10, 14, 61, 62, 64, 65, and 67 – and all New Lakehead Pipelines.

ee. "Lakehead System Pipeline" shall mean any pipeline that is part of the Lakehead System.

ff. "Line 6A Discharges" shall mean the discharges of oil into the environment from Lakehead System Line 6A oil transmission pipeline that occurred on or about September 9, 2010, near Romeoville, Illinois.

gg. "Line 6B Discharges" shall mean the discharges of oil into the environment from Lakehead System Line 6B oil transmission pipeline that occurred on July 25-26, 2010, near Marshall, Michigan.

hh. "Local Emergency Responder" shall mean a person who works in close proximity to the Lakehead System and is among those responsible for going to the scene of an emergency such as an oil spill to provide assistance.

ii. "Material Balance System" or "MBS Leak Detection System" shall mean the computational pipeline monitoring system used by Enbridge to detect leaks or ruptures in the Lakehead System.

jj. "MBS Segment" shall mean a section of pipeline that is bounded on each end by adjacent flowmeters.

kk. "NCP" shall mean the National Oil and Hazardous Substances Contingency Plan, as codified in 40 C.F.R. Part 300.

ll. "New Lakehead Pipeline" shall have the meaning set forth in Paragraph 84.a.

mm. "Oil Spill Liability Trust Fund" shall mean the fund established pursuant to 26 U.S.C. §§ 4611 and 9509.

nn. "OneSource" shall mean the data-integration database described in Subsection VII.F of the Consent Decree.

oo. "OPA" shall mean the Oil Pollution Act of 1990, Pub. L. No. 101-380, 104 Stat. 484, 33 U.S.C. §§ 2701-2761.

pp. "Original US Line 3" shall mean the segment of Lakehead System Line 3 oil transmission pipeline currently operating between Neche, North Dakota and Superior that Enbridge is required to replace under Section VII.B of this Consent Decree.

qq. "Original US Line 6B" shall mean the 285-mile pipeline between Griffith, Indiana and the international border near Sarnia, Ontario that Enbridge replaced in 2014.

rr. "OSROs" shall mean oil spill response organizations.

ss. "Overlapping MBS Segment" shall mean a section of pipe integrating two or more MBS Segments for the purpose of establishing and maintaining temporary leak detection capability, as provided in Paragraph 94.

tt. "Paragraph" shall mean a portion of this Decree identified by an arabic numeral.

uu. "Parties" shall mean the United States and Enbridge.

vv. "Past Removal Costs" shall mean all costs, including, but not limited to, direct and indirect costs, incurred and paid by the United States in responding to the Line 6B Discharges and charged against the Oil Spill Liability Trust Fund as of October 1, 2015.

ww. "Pipeline and Hazardous Materials Safety Administration" or "PHMSA" shall mean the Pipeline and Hazardous Materials Safety Administration and any of its successor departments or agencies.

xx. "Predicted Burst Pressure" shall mean the lowest estimated pressure at which a feature is predicted to burst or rupture, calculated as specified in this Consent Decree.

yy. "PREP Guidelines" shall mean the guidelines prepared for the National Preparedness for Response Exercise Program used in emergency preparedness planning.

zz. “Priority Feature” shall have the same meaning as defined in Paragraph 33.b.

aaa. “Remaining Life” shall mean the estimated period time remaining before a Crack feature or Corrosion feature is predicted to grow to the point where its Predicted Burst Pressure is less than or equal to the Established MOP at the location of the feature.

bbb. “Remotely-Controlled Valve” shall mean any valve that is designed to be closed remotely by an operator from a Control Room.

ccc. “Replacement Segment” shall have the same meaning as set forth in Paragraph 84.b.

ddd. “Rupture Pressure Ratio” or “RPR” shall mean, with respect to any Crack or Corrosion feature, the Predicted Burst Pressure of such feature divided by the pressure at 100 percent Specified Minimum Yield Strength.

eee. “Section” shall mean a portion of this Decree identified by a roman numeral.

fff. “Sectionalize” shall mean the closure of all Remotely-Controlled Valves within any portion of a pipeline.

ggg. “Shutdown” shall refer to the operational period between (1) the initial cessation of pumping operations in a pipeline, or section of pipeline, through which oil has been actively flowing and (2) the point where the flow rate within the pipeline, or section of pipeline, is zero.

hhh. “Specified Minimum Yield Strength” or SMYS shall have the same meaning as defined at 49 C.F.R. § 195.2.

iii. "Startup" shall refer to the operational period between (1) the commencement of pumping operations in a pipeline that had been previously shut down and (2) the point where oil in the pipeline achieves a Steady State.

jjj. "Steady State" shall mean the pipeline hydraulic condition that exists when all the pipeline operating parameters remain nearly constant over time.

kkk. "Supervisory control and data acquisition system" or "SCADA system" shall have the same meaning as defined by 49 C.F.R. § 195.2.

lll. "Tool Run" shall mean the process of running an ILI tool with sensors through a pipeline, or section of pipeline, for the purpose of detecting, sizing, and classifying Crack features, Corrosion features, and Geometric features.

mmm. "Transient-State" shall mean the operational condition when oil is moving through a pipeline, or section of pipeline, at a rate or pressure that is in flux.

nnn. "United States" shall mean the United States of America, acting on behalf of EPA and the United States Coast Guard.

ooo. "USCG" shall mean the United States Coast Guard and any of its successor departments or agencies.

ppp. "Valve Segment" shall mean each segment of pipeline between two adjacent Remotely-Controlled Valves.

V. CIVIL PENALTY

11. Within 30 Days after the Effective Date, Enbridge shall pay the sum of sixty-one million dollars ($61,000,000), plus Interest, as a civil penalty for the Line 6B Discharges and an additional sum of one million dollars ($1,000,000), plus Interest, as a civil penalty for the Line 6A

Discharges. Interest shall accrue on both amounts from the date on which the Consent Decree is lodged with the Court.

12. Enbridge shall pay the civil penalties due by FedWire Electronic Funds Transfer ("EFT") to the U.S. Department of Justice in accordance with instructions to be provided to Enbridge by the Financial Litigation Unit ("FLU") of the United States Attorney's Office for the Western District of Michigan. Such monies are to be deposited in the Oil Spill Liability Trust Fund. The payment shall reference the Civil Action docket number assigned to this case and DOJ Number 90-5-1-1-10099 (for the line 6B Discharges) and DOJ Number 90-5-1-1-10124 (for the Line 6A Discharges), and shall specify that the payment is made for CWA civil penalties to be deposited into the Oil Spill Liability Trust Fund pursuant to 33 U.S.C. § 1321(s) and 26 U.S.C. § 9509(b)(8). Any funds received after 11:00 a.m. Eastern Standard Time shall be credited on the next business day.

13. At the time of payments, Enbridge shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter, which shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in this case, and shall reference the Civil Action Number assigned to this case, and DOJ Number 90-5-1-1-10099 (for the Line 6B Discharges) and DOJ Number 90-5-1-1-10124 (for the Line 6A Discharges), to the United States in accordance with Section XVI, of this Decree (Notices) and by email to acctsreceivable.CINWD@epa.gov and by mail to:

EPA Cincinnati Finance Office
26 Martin Luther King Drive
Cincinnati, Ohio 45268

14. Enbridge shall not deduct or capitalize the civil penalties paid under this Section in calculating federal income tax in the United States or Canada, any state income tax, or any provincial or territorial tax.

VI. PAYMENTS FOR REMOVAL COSTS RELATING TO LINE 6B DISCHARGES

15. Payment for Past Removal Costs. Within 30 Days after the Effective Date, Enbridge shall pay $5,438,222 plus Interest accruing from the date of lodging of the Consent Decree to reimburse the Oil Spill Liability Trust Fund for Past Removal Costs. Payment shall be made in accordance with Paragraph 17.a (Past Removal Cost Payments).

16. Payment for Future Removal Costs. Enbridge shall reimburse the Oil Spill Liability Trust Fund for all Future Removal Costs billed by USCG that are consistent with the NCP. On a periodic basis, USCG will send Enbridge a bill for payment of Future Removal Costs that includes an itemized costs summary identifying direct and indirect costs incurred by the United States for removal actions pertaining to the Line 6B Discharges. Enbridge shall make all payments within 30 Days after its receipt of each bill requiring payment, except as otherwise provided in Paragraph 18, in accordance with 17.b ("Future Removal Cost Payments"). Enbridge shall be liable for interest on the total amount of each bill, accruing as of the date payment of each bill became due. For the purposes of this Section (Payment for Removal Costs Relating to Line 6B Discharges), the term "interest" shall mean the interest rate specified in 28 U.S.C. § 1961 as of the date payment of a bill becomes due.

17. Payment Instructions

a. *Past Removal Cost Payments*. Enbridge shall pay the Past Removal Costs due under Paragraph 15 by EFT to the U.S. Department of Justice account, in accordance with

current EFT procedures, referencing the Federal Project Number E10527 and DOJ Case Number 90-5-1-1-10099. Such payment shall be made in accordance with instructions provided to Enbridge by the FLU of the United States Attorney for the Western District of Michigan following lodging of the Consent Decree. Any payments received by the Department of Justice after 4:00 p.m. (Eastern Time) will be credited on the next business day.

b. *Future Removal Cost Payments*. For all payments of Future Removal Costs under Paragraph 16, Enbridge shall make such payment by Fedwire EFT, referencing the Federal Project Number E10527 and DOJ Case Number 90-5-1-1-10099, in accordance with instructions to be provided.

c. *Notice of Payment*: At the time of each payment made under this Section, Enbridge shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter, to the United States in accordance with Section XVI (Notices), and to:

Commandant (CG-LCL)
Attn: Brian Judge, Chief
Office of Claims and Litigation
U.S. Coast Guard Stop 7213
2703 Martin Luther King Jr. Avenue SE
Washington, D.C. 20593-7213

Director (NPFC)
ATTN: LCDR LaCresha Johnson
CG National Pollution Funds Center
US Coast Guard Stop 7605
2703 Martin Luther King Jr Ave SE
Washington, DC 20593-7605

In its transmittal letter, Enbridge shall state the payment is for removal costs owed pursuant to this Consent Decree and shall reference the Civil Action Number assigned to this case, the Federal Project Number E10527, and DOJ Case Number 90-5-1-1-10099.

18. Contesting Future Response Costs. Enbridge may submit a Notice of Dispute, initiating the procedures of Section XIII (Dispute Resolution), regarding any Future Removal Costs billed under Paragraph 16 (Payment for Future Removal Costs) if it determines that the bill has a mathematical error or included a cost item that is not within the definition of Future Removal Costs, or if it believes that the bill includes costs that were the direct result of an action that was not consistent with the NCP. Such Notice of Dispute shall be submitted in writing within 30 Days after receipt of the bill and must be sent to the United States pursuant to Section XVI (Notices). Such Notice of Dispute shall specifically identify the contested Future Removal Costs and the basis for objection. If Enbridge submits a Notice of Dispute, Enbridge shall pay all uncontested Future Removal Costs within 30 Days after Enbridge's receipt of the bill requiring payment. Simultaneously, Enbridge shall establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation (FDIC), and remit to that escrow account funds equivalent to the amount of the contested Future Removal Costs. Enbridge shall send to the United States, as provided in Section XVI (Notices), a copy of the transmittal letter and check paying the uncontested Future Removal Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. If the United States prevails in the dispute, Enbridge shall pay the sums due (with accrued interest) to the United States within 7 Days after the resolution of the dispute. If Enbridge prevails concerning any aspect of the contested costs, Enbridge shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to the United States within 7 Days after the resolution of the dispute. Enbridge shall be disbursed any balance

of the escrow account. All payments to the United States under this Paragraph shall be made in accordance with Paragraph 17 (Payment Instructions). The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIII (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Enbridge's obligation to reimburse the United States for its Future Removal Costs.

VII. INJUNCTIVE MEASURES

19. Enbridge shall fund and perform all injunctive measures set forth in Section VII as detailed in Subsections VII.A-J below and in Appendices A to F, which are incorporated into Section VII.

20. Except as otherwise specifically provided in this Consent Decree, requirements of this Section VII shall apply to all of the Lakehead System.

A. ORIGINAL US LINE 6B

21. Enbridge is permanently enjoined from operating, or allowing anyone else to operate Original US Line 6B for the purpose of transporting oil, gas, diluent, or any hazardous substance. Nothing in this Paragraph shall be construed to preclude Enbridge from removing pumps or other equipment from Original US Line 6B and reusing such equipment.

B. REPLACEMENT OF LINE 3; EVALUATION OF REPLACEMENT OF LINE 10

22. Replacement of Line 3 in the United States.

a. Enbridge shall replace the segment of the Lakehead System Line 3 oil transmission pipeline that spans approximately 292 miles from Neche, North Dakota, to Superior, Wisconsin ("Original US Line 3"), provided that Enbridge receives all necessary approvals to do so. Enbridge shall seek all approvals necessary for the replacement of Original US Line 3, and provide approval authorities with complete and adequate information needed to support such

approvals, as expeditiously as practicable, and Enbridge shall respond as expeditiously as practicable to any requests by approval authorities for supplemental information relating to the requested approvals. If Enbridge receives approvals necessary for replacement of Original US Line 3, Enbridge shall complete the replacement of Original US Line 3 and take Original US Line 3 out of service, including depressurization of Original US Line 3, as expeditiously as practicable.

b. Within 90 Days after Original US Line 3 is taken out of service, Enbridge shall purge remaining oil from Original US Line 3 by running a cleaning pig through the line, and Enbridge shall complete final clean-out and decommissioning of Original US Line 3 within one year thereafter.

c. Until decommissioning of Original U.S. Line 3 in accordance with Subparagraph 22.b, Enbridge shall limit the operating pressure in each segment of Original US Line 3 that Enbridge continues to operate so that the operating pressure within such segment does not exceed the MOP value specified for that segment in https://www.epa.gov/enbridge-spill-michigan/enbridge-revised-maximum-operating-pressure-values, unless and until Enbridge has completed hydrostatic pressure testing that validates use of an increased operating pressure, and has submitted to EPA a report summarizing the hydrostatic pressure test procedures and results. Under no circumstances shall a hydrostatic pressure test be deemed to validate an operating pressure within any hydrostatic pressure test segment that is higher than 80% of the lowest test pressure achieved in such test segment.

d. If Enbridge has not taken all portions of Original US Line 3 out of service by December 31, 2017, Enbridge shall comply with the additional requirements set forth below:

(1) On an annual basis with the exception of the final year of service for the Original US Line 3, Enbridge shall complete valid ILIs of all portions of Original

US Line 3 that Enbridge continues to operate, using the most appropriate tools for detecting, charactering, and sizing all of the following: Crack Features, Corrosion Features, and Geometric Features;

(2) Enbridge shall identify, excavate and mitigate or repair all Features Requiring Excavation detected in the ILIs required pursuant to Subparagraph 22.d.(1), in accordance with the requirements of Subsection VII.D; and

(3) Enbridge shall clean all portions of Original US Line 3 that Enbridge continues to operate and shall use biocide treatments to reduce microbiological activity on a quarterly basis.

e. After Original US Line 3 is taken out of service, Enbridge shall be permanently enjoined from operating, or allowing anyone else to operate, any portion of the pipeline for the purpose of transporting oil, gas, diluent or any hazardous substance. Nothing in this Paragraph shall be construed to preclude Enbridge from removing pumps or other equipment from Original US Line 3 and reusing such equipment.

23. *Evaluation of Replacement of Portions of Line 10 within the United States*: Within 120 Days of the Effective Date of the Consent Decree, Enbridge shall submit to EPA a report evaluating replacement of the entire portion of the Lakehead System Line 10 oil transmission pipeline between the Canadian border near Niagara Falls, NY, and the terminus of the pipeline near West Seneca, NY ("US Line 10"). The report shall evaluate replacement of the entire US Line 10. The Report shall also include a separate evaluation of replacement of the short segment of the pipeline that crosses the Niagara River at Grand Island, NY. The evaluation shall contain a discussion of the number, density, and severity of Crack features and Corrosion features found on

US Line 10, as well as comparison of these features to those on the 21-mile section of Line 10 to be replaced near Hamilton, Ontario.

C. HYDROSTATIC PRESSURE TESTING

24. No less than 60 Days prior to any hydrostatic pressure testing undertaken pursuant to the terms of this Consent Decree, Enbridge shall prepare and submit to EPA a plan and schedule for hydrostatic pressure testing of the pipeline. The plan shall describe in detail how Enbridge will conduct the hydrostatic pressure test and demonstrate that the hydrostatic pressure test will comply with all requirements of Paragraph 25 below. Enbridge shall conduct the hydrostatic pressure test in accordance with the plan and schedule.

25. *Procedures for Hydrostatic Pressure Testing.* All hydrostatic pressure tests conducted by Enbridge under this Consent Decree shall comply with the following testing procedures and requirements:

a. The sections of each pipeline to be hydrostatically pressure tested shall be divided into various test segments, each of which will be separately pressurized as provided below in this Paragraph. Each test segment shall be able to meet the requirements specified in Subparagraph 25.b below.

b. Within each test segment, hydrostatic pressure testing shall be performed over a continuous eight hour period, in accordance with the specifications set forth below in this Subparagraph:

(1) Enbridge shall maintain a pressure of at least 1.25 x MOP for four hours at all locations in each test segment.

(2) Enbridge shall maintain an operating pressure not less than 1.1 x MOP for the remainder of the continuous eight hour test period at all locations in each test segment.

c. Enbridge shall complete the tests as soon as is practicable, but in no event shall testing take longer than 270 Days from the date of EPA's receipt of the plan and schedule.

d. Additional water may not be added to any tested line segment while the test is underway.

e. At least 30 Days before conducting any pressure test, Enbridge shall provide written notification to EPA and all relevant federal agencies (e.g. PHMSA and Coast Guard) and relevant local emergency responders.

f. Within 120 Days of completing each required hydrostatic pressure test, Enbridge shall prepare and submit to EPA a report describing the test and summarizing the results of the test, including a description of any features that leaked or ruptured during the test and planned corrective actions, including a schedule of completion, that Enbridge plans to take to address issues identified during the hydrostatic pressure test.

26. *Line Failure During Hydrostatic Pressure Testing*: Enbridge shall take the following actions in the event of a leak or rupture of the pipeline during a hydrostatic pressure test:

a. Enbridge shall immediately take all necessary and appropriate actions to prevent the discharge from the pipeline from reaching or spreading upon any body of water, including wetlands, or adjoining shoreline or area of dryland that could channel the release toward a body of water, including wetlands, or adjoining shoreline. Nothing in this Consent Decree is intended to waive, modify, or suspend Enbridge's duty under the Clean Water Act to prevent

discharges of oil or hazardous substances into or upon the waters of the United States or adjoining shorelines, as well as discharges of pollutants from a point source to waters of the United States, unless permitted, and to comply with all NPDES and state-issued permit conditions.

b. Within 90 Days of the rupture or leak, Enbridge shall complete and submit to EPA an investigatory report of the pipeline failure. The report shall include a discussion of the failure mechanism based upon a laboratory or other investigation of the section of pipe with the rupture or leak. In addition, the report shall present findings and conclusions as to whether Enbridge's ILI tools missed, or underestimated the size of, the metallurgical feature that caused the rupture or leak. If the feature was missed or undersized by such tools, Enbridge shall propose a plan and schedule for undertaking corrective action to ensure that similar features do not pose a threat to any Lakehead System Pipeline.

D. IN-LINE INSPECTION BASED SPILL PREVENTION PROGRAM

(I) <u>In-Line Inspections</u>

27. Enbridge shall implement the requirements of this Subsection VII.D.(I) in order to assure timely identification and evaluation of all features, including features that pose either leak or rupture threats, whether such features are located in the base metal (either interior or exterior surfaces), long seam, or girth welds. Such features may include, but are not limited to, Crack or Crack-like features, including stress corrosion cracks, crack fields, and hook cracks, seam weld anomalies, including lack of fusion anomalies, Selective Seam Corrosion, Axial Slotting and Axial Grooving, other Corrosion features, dents, and other Geometric features. For the purposes of this Consent Decree, the terms "rupture" and "leak" shall include any "discharge" within the meaning of Section 311 of the CWA, 33 U.S.C. § 1321(a)(2).

28. Enbridge shall conduct periodic In-Line Inspections ("ILIs") of each pipeline in accordance with this Consent Decree using ILI tools that are most appropriate for accurately detecting, characterizing and sizing all Crack features, Corrosion features and Geometric features that are present or anticipated on the particular pipeline being inspected. After the Effective Date of the Consent Decree, Enbridge shall complete valid ILIs of the entire length of each pipeline using, at a minimum, each of the following: (1) an ILI tool that is most appropriate for accurately detecting, characterizing and sizing all Crack features that may be present, (2) an ILI tool that is most appropriate for accurately detecting, characterizing and sizing all Corrosion features that may be present, and (3) an ILI tool that is most appropriate for accurately detecting, characterizing and sizing all Geometric features that may be present.

a. Until termination of this Consent Decree in accordance with Section XX, below, Enbridge shall periodically re-inspect each Lakehead System Pipeline using ILI tools that meet all of the requirements described above in this Paragraph 28.

b. Except as provided in Paragraph 70, all ILIs required under this Consent Decree shall be scheduled and completed in accordance with the re-inspection interval requirements in Paragraphs 65 and 66, below.

c. Enbridge shall require each of its ILI vendors to notify Enbridge immediately of any instance in which the vendor determines that (i) a scheduled ILI of any Lakehead System Pipeline could not be completed due to an ILI tool malfunction or other circumstance that prevented the collection of valid, reliable data, or (ii) a completed ILI of any Lakehead System Pipeline is not valid or reliable for any reason. In each such case involving an incomplete or invalid ILI, Enbridge shall take all steps necessary to complete a valid ILI within the timeframes specified in Paragraphs 65 and 66.

29. Within 30 Days of the Effective Date of the Consent Decree, Enbridge shall submit to EPA a schedule that will identify each ILI scheduled to be initiated on any pipeline during a 12 month period following the Effective Date of the Consent Decree. Thereafter in each Semi-Annual Report required pursuant to Paragraph 143, Enbridge shall identify each ILI that is scheduled to be initiated on any pipeline during the 12-month period after the close of the reporting period covered by that Semi-Annual Report. Each ILI schedule referred to in this Paragraph shall be consistent with the re-inspection interval requirements in Paragraphs 65 and 66, below.

30. Enbridge shall perform all ILIs in accordance with the schedules referred to in Paragraph 29 and the requirements of Paragraphs 65, 66, and 70 below. The Parties may agree to modify any ILI schedule without the need for Court approval, provided that the modified schedule remains consistent with the requirements in Paragraphs 65, 66, and 70.

31. Compliance with Tool Specifications: Enbridge shall assure that ILI tools are operated consistently within manufacturer/vendor specifications, including tool speed. In each Semi-Annual Report required under Paragraph 143, Enbridge shall report each instance in which any ILI tool operates outside tool specifications. In such reports, Enbridge shall also evaluate the causes of the failure to adhere to the tool specifications and describe all steps that Enbridge has taken, or plans to take, to prevent or reduce the likelihood of a recurrence.

(II) <u>Review of ILI Data</u>

32. Enbridge shall require each of its vendors of ILI services to submit an initial report to Enbridge promptly after each ILI of any Lakehead System Pipeline ("Initial ILI Report"), except in cases where the ILI vendor has previously notified Enbridge in accordance with Paragraph 28.c that an ILI could not be completed or was not valid. This Initial ILI Report shall

include all data relating to all features detected by the ILI tool, as well as all information relevant to tool speed and performance. Enbridge shall require submission of Initial ILI Reports in accordance with the following schedule:

a. In the case of ILI tools used to assess Crack features, Initial ILI Reports shall be submitted to Enbridge within 120 Days after the tool is removed from the pipeline at the conclusion of the in line inspection.

b. In the case of ILI tools used to assess Corrosion features, Initial ILI Reports shall be submitted to Enbridge within 90 Days after the tool is removed from the pipeline at the conclusion of the in line inspection.

c. In the case of ILI tools used to assess Geometric features, Initial ILI Reports shall be submitted to Enbridge within 60 Days after the tool is removed from the pipeline at the conclusion of the in line inspection.

33. Priority Features

a. Enbridge shall require each of its vendors of ILI services to notify Enbridge of any Priority Feature identified during an ILI and to provide Enbridge with the ILI data relating to such Priority Feature immediately upon identification of the Priority Feature, without waiting for preparation and submission of the Initial ILI Report.

b. For the purposes of this Consent Decree, a "Priority Feature" shall mean any Crack feature, Corrosion feature, or Geometric feature that may require priority attention over other features based upon criteria specified by Enbridge in its contract or work order with the vendor for ILI services. In such a contract or work order, Enbridge shall define a Priority Feature as including, among other things, any feature that the ILI vendor may consider to be an immediate

threat to the integrity of the pipeline. At a minimum, Priority Features shall include features that meet the criteria set forth in Appendix A.

c. Within two (2) Days after receiving notification of any Priority Feature, Enbridge shall review the ILI data relating to each such feature and any other relevant information and determine whether such feature was correctly identified and whether the feature was previously repaired or mitigated. As expeditiously as practicable after making such determinations, but in no event more than two (2) Days after doing so, Enbridge shall determine whether such Priority Feature is a Feature Requiring Excavation in accordance with Section VII.D.(III), and

(1) add such Priority Feature to the Dig List in accordance with Paragraph 37, and

(2) determine whether a point pressure restriction is required for such Priority Feature and, if so, establish such pressure restriction, in accordance with Paragraphs 47 - 59 below.

d. Enbridge shall excavate and repair or mitigate each Priority Feature that qualifies as a Feature Requiring Excavation, in accordance with the timetables set forth in Subsection VII.D.(V), below.

34. Data Quality Review

a. Within 30 Days after receiving any Initial ILI Report, Enbridge shall complete a preliminary review of the Initial ILI Report. As part of the preliminary review, Enbridge shall identify all concerns with respect to the quality of any reported ILI data, and Enbridge shall identify all pipeline sections and/or features affected by the identified data quality concerns.

b. With respect to all pipeline sections and/or features for which Enbridge did not identify data quality concerns during its preliminary review of any Initial ILI Report, Enbridge shall immediately proceed to evaluate whether such pipeline sections and/or features include any Feature Requiring Excavation, consistent with the requirements in Subsection VII.D.(III), below.

c. With respect to all pipeline sections and/or features for which Enbridge identified data quality concerns during its preliminary review of any Initial ILI Report, Enbridge shall complete any evaluations required to resolve all of the identified data quality concerns as expeditiously as practicable.

d. Except with respect to any investigative dig programs required under Subparagraph 34.e below, Enbridge shall complete all data quality evaluations of ILI data within 180 Days after the ILI tool is removed from the pipeline at the conclusion of any ILI investigation.

e. During its preliminary review of the Initial ILI Report, Enbridge may also identify potential data quality concerns if there is a significant discrepancy between the data provided in the Initial ILI Report and the data provided in the most recent previous assessment of the same pipeline with respect to the severity, density or type of detected Features Requiring Excavation. For purposes of this Subparagraph 34.e, a discrepancy with respect to the severity of reported features shall be considered significant if at least 60% of the population of reported features are either (A) more severe than previously reported and more severe than predicted by the most recent assessment of anticipated feature growth, or (B) less severe than previously reported. Further, for the purpose of this Subparagraph 34.e, a discrepancy with respect to the

density of reported features shall be considered significant if the number of reported features is at least 20% greater or 20% less than the number of features previously reported.

(1) Whenever Enbridge identifies a significant discrepancy with respect to the severity, density or type of features, within the meaning of this Subparagraph 34.e, Enbridge shall conduct an investigation to evaluate the accuracy and reliability of the data provided in the Initial ILI Report currently under consideration. If Enbridge is unable to account for identified discrepancies based on a review of available information, including repair records, ILI tool differences (including differing tool tolerances and detection thresholds), algorithm differences, or other relevant information, Enbridge may conduct an investigative dig program to collect field measurements of a sufficient number of relevant features to assess the accuracy and reliability of the data presented in the Initial ILI Report.

(2) Enbridge shall validate and document the precision and accuracy of all field measurement equipment and procedures used in any investigative digs. Enbridge shall assure that any equipment used to obtain field measurements is capable of accurately detecting and sizing all features or anomalies at and above the relevant ILI tool tolerance.

(3) If a comparison of field measurements obtained during an investigative dig program and ILI data relating to the same features or pipeline sections demonstrates a systematic bias or scatter in the reported ILI data, Enbridge shall determine the nature and magnitude of any bias or error. Enbridge may adjust the reported ILI data to correct for any demonstrated bias or scatter, as provided below in this Subsection VII.D.(II).

f. The data quality evaluations undertaken by Enbridge pursuant to this Subsection VII.D. (II), including any investigatory dig programs undertaken pursuant to Subparagraph 34.e, shall not affect or delay Enbridge's obligation to timely identify Features Requiring Excavation and complete Dig Lists as provided in Paragraph 37, below. Pending completion of any investigative dig program pursuant to Subparagraph 34.e, Enbridge shall use the ILI-reported values applicable to any features under investigation for purposes of identifying Features Requiring Excavation and compiling the Dig List, in accordance with Subsection VII.D.(III). Upon completion of any investigative dig program, Enbridge may revise the Dig List to the extent that ILI data adjusted in accordance with Subparagraph 34.e.(3) results in changes in the identification of Features Requiring Excavation.

g. Enbridge shall repair or mitigate, at the time of the investigative dig, any feature found during the investigative dig that meets one or more of the dig-selection criteria in Subsection VII.D.(V), below.

(III) Identification of Features Requiring Excavation

35. Following each ILI, Enbridge shall evaluate each feature identified in the Initial ILI Report to determine whether the feature is a Feature Requiring Excavation.

36. For the purposes of this Consent Decree, the term "Feature Requiring Excavation" shall mean any Crack feature, Corrosion feature, or Geometric feature that meets one or more of the dig-selection criteria in Subsection VII.D.(V), below. With respect to Crack features and Corrosion features, Enbridge shall apply three methods to identify a Feature Requiring Excavation. First, Enbridge shall estimate the lowest pressure at which the feature is predicted to rupture or leak ("Predicted Burst Pressure") using the procedures set forth in Subsection VII.D.(IV), below. Second, Enbridge shall estimate the amount of time remaining until the

feature is predicted to rupture or leak ("Remaining Life") using the procedures set forth in Subsection VII.D.(VI), below. Finally, Enbridge shall consider other unique characteristics of the feature using the criteria set forth in Subsection VII.D.(V). With respect to Geometric features, Enbridge shall apply only the latter method in identifying a Feature Requiring Excavation.

37. Following each ILI of any Lakehead System Pipeline, other than an ILI that is determined to be invalid as provided in Paragraph 28.c, above, Enbridge shall identify all Crack features, Corrosion features, and Geometric features detected by the ILI that are Features Requiring Excavation and add such features to the electronic list of features scheduled for excavation and repair or mitigation ("Dig List") in accordance with the schedule below, but in no event shall such actions occur more than 180 Days after the ILI tool is removed from the pipeline at the conclusion of any ILI investigation.

METHOD OF IDENTIFYING FEATURES REQUIRING EXCAVATION	**APPLICABLE DEADLINES FOR INDENTIFYING FEATURES REQUIRING EXCAVATION AND PLACING SUCH FEATURES ON THE DIG LIST**
Features that are identified as Features Requiring Excavation based upon their Predicted Burst Pressure	Enbridge shall complete identification of all such Features Requiring Excavation and add such features to the Dig List within five Days of calculating the Predicted Burst Pressure of the features in accordance with Subsection VII.D.(IV), below.
Features that are identified as Features Requiring Excavation based upon their Remaining Life	Enbridge shall complete identification of all such Features Requiring Excavation and add such features to the Dig List within five Days of calculating the Remaining Life of the features in accordance with Subsection VII.D.(VI) below.

METHOD OF IDENTIFYING FEATURES REQUIRING EXCAVATION	APPLICABLE DEADLINES FOR INDENTIFYING FEATURES REQUIRING EXCAVATION AND PLACING SUCH FEATURES ON THE DIG LIST
Features that are identified as Features Requiring Excavation based upon reasons other than their Predicted Burst Pressure or their Remaining Life	Enbridge shall complete identification of all such Features Requiring Excavation and add such features to the Dig List within 5 Days of completing the preliminary review of the Initial ILI Report, provided that such a review does not identify any data quality concerns relating to the feature. For those features with data quality concerns, Enbridge shall complete identification of all Features Requiring Excavation and add such features to the Dig List within 5 Days after resolving those data quality concerns.

38. For each Feature Requiring Excavation placed on the Dig List, including any Feature Requiring Excavation placed on the Dig List pursuant to Subparagraph 40.c, below, Enbridge shall take the following actions:

a. Establish excavation and repair deadlines that take into account the level of the threat posed by the feature, but in no event shall the deadline for any feature exceed the number of Days allotted for excavation and repair of the feature as set forth Subsection VII.D.(V), below. If a feature meets more than one dig-selection criteria in Subsection VII.D.(V), below, Enbridge shall excavate and repair the feature in accordance with the shortest applicable timetable for excavation and repair of the feature, and

b. Establish any pressure restriction required for such feature pursuant to Subsection VII.D.(V), below. In any case where such a feature is subject to more than one pressure restriction under Subsection VII.D.(V), Enbridge shall establish the pressure restriction that results in the lowest operating pressure at the location of the feature.

(1) Although the pressure restriction requirements in Subsection VII.D.(V) for any individual feature are expressed in terms of "point pressure restriction values" (i.e., the maximum permissible pressure at the location of the feature), the pressure restriction requirement may be satisfied by limiting the discharge pressure at the nearest upstream pump station to a level that assures compliance with the point pressure restriction value at the location of the feature.

(2) In any case where a feature subject to a pressure restriction under VII.D.(V) is located in a pipeline segment for which any discharge pressure restriction has been established, Enbridge must maintain compliance with the applicable discharge pressure restriction even if it reduces operating pressure at the location of such feature below the level established under Section VII.D.(V).

39. Following each ILI, Enbridge shall excavate and repair or mitigate all identified Features Requiring Excavation on the pipeline that was the subject of the ILI, in accordance with Subsection VII.D.(V). During such excavations, Enbridge shall obtain and record field measurements of all features on the excavated sections of such pipeline, except as provided below in this Paragraph 39. If Enbridge excavates any additional sections of such pipeline following the ILI, including investigative digs pursuant to Paragraph 34.e, above, Enbridge shall also obtain and record field measurements of all features on such additional pipeline sections, except as provided below in this Paragraph.

a. In cases where an excavated section of pipe contains a high volume of unreported features, Enbridge need not collect and record field measurements of all features observed in the field, provided that (1) Enbridge obtains and records field measurements of all features that were identified by the ILI, as well as the five worst features not identified by the ILI;

(2) Enbridge records the total number of unreported features that are detectible within ILI tool specifications and includes that information in its next Semi-Annual Report; and (3) Enbridge repairs or mitigates the features on such section of pipe by sleeving or replacing such section of pipe, or by grinding or blasting and recoating features on such section of pipe. In the case of unreported Crack features and unreported Corrosion features, features with the lowest predicted burst pressures shall be deemed to be the worst features.

b. Notwithstanding the foregoing, Enbridge shall not be required for purposes of this Paragraph to record any field measurement values that are below the ILI tool detection thresholds.

40. Within 30 Days after completing excavation of all Features Requiring Excavation identified on a pipeline based on any Initial ILI Report, Enbridge shall complete an analysis of field data obtained during all excavations conducted on such pipeline subsequent to the ILI, including investigative digs pursuant to Paragraph 34.e, above, and determine whether field data indicate that the ILI tool tended to understate the actual severity of features on the excavated sections of the pipeline ("ILI tool depth bias"). In performing the analysis required by this Paragraph, Enbridge shall consider all field data that has sufficient precision and reliability to assess the accuracy of the ILI-reported data. This determination shall be based on a statistical analysis indicating either that (i) field measurements of feature depths on excavated sections of the pipeline exceed ILI-reported feature depths on excavated sections of the pipeline by more than one tool tolerance, or that (ii) burst pressures of features on excavated pipe segments calculated using field measurement values of feature length and depths ("Field Burst Pressure") are lower than burst pressures for the same features calculated using the ILI-reported feature length and depth ("ILI Burst Pressure"). Both Field Burst Pressure and ILI Burst Pressure values shall be

calculated in accordance with Subsection VII.D.(IV), below, and Appendix B, except that the Field Burst Pressure value for each feature may be calculated using all recorded depth measurements for the feature, rather than using the maximum reported feature depth value and a flaw profile approximation, such as parabolic or rectangular.

a. If Enbridge uses a statistical analysis of Field Burst Pressure values and ILI Burst Pressure values for features on excavated sections of any pipeline for the determination required in this Paragraph 40, and that analysis indicates that Field Burst Pressure values are greater than or equal to ILI Burst Pressure values, ILI-reported values concerning the length and depth of reported features shall be considered acceptable for purposes of this Paragraph 40, and Enbridge shall not be required to adjust any predicted burst pressure values previously calculated in accordance with Subsection VII.D.(IV), below, or any Remaining Life estimates calculated under Subsection VII. D.(VI), below, and Enbridge will not be required to add any new features to the Dig List.

b. If Enbridge uses a statistical analysis of Field Burst Pressure values and ILI Burst Pressure values for features on excavated sections of any pipeline for the determination required in this Paragraph 40, and that analysis indicates that Field Burst Pressure values are lower than ILI Burst Pressure calculations on such excavated pipeline sections, Enbridge shall (i) revise the calculated burst pressure values previously calculated in accordance with Subsection VII.D.(IV) below, for all remaining unrepaired features on such pipeline, to appropriately account for the reduction in burst pressure values established on the basis of field measurements, and (ii) revise Remaining Life estimates previously calculated in accordance with Subsection VII.D.(VI), below, for all unrepaired features on such pipeline to appropriately account for additional information regarding feature depth obtained during excavations. To the extent that the revised

burst pressure or Remaining Life calculations indicate that any features remaining on such pipeline are Features Requiring Excavation, such features shall be added to the Dig List within 5 Days after completing the relevant calculations.

c. If Enbridge does not undertake a statistical analysis comparing Field Burst Pressure values and ILI Burst pressure values of features on excavated sections of a pipeline pursuant to this Paragraph 40, Enbridge must complete a statistical analysis that compares field measurements of feature depth and ILI-reported feature depth on such excavated pipeline sections for the determination that is required by this Paragraph 40. Except as provided in Subparagraph 40.a, above, if field measurements of feature depth exceed ILI-reported feature depth values by more than one tool tolerance, Enbridge shall quantify the magnitude of any ILI tool depth bias. Not more than five (5) Days after determining the magnitude of any ILI tool depth bias, Enbridge shall add the ILI tool bias to the ILI-reported depth of all unrepaired features, and complete revised Predicted Burst Pressure calculations and Remaining Life calculations in accordance with Subsections VII.D.(IV) and VII.D.(VI), below, and determine whether any additional features qualify as Features Requiring Excavation when the revised feature depth values are taken into account. Upon determining that any feature is a Feature Requiring Excavation, Enbridge shall add such feature to the Dig List immediately, but in no event longer than 5 Days after the determination required by this Paragraph 40.

41. For each ILI investigation, Enbridge shall maintain electronic records relating to ILI data, including, but not limited to: (1) identification of the ILI tool used for each inspection, the types of features the ILI tool is being used to detect, characterize, and size, and the basis for Enbridge's determination that the ILI tool used is the most appropriate tool for accurately detecting, characterizing and sizing such features; (2) any notification from the ILI vendor that an

ILI could not be completed or was invalid; (3) information relating to any Priority Features, including the date the vendor notified Enbridge of the feature, the date Enbridge confirmed the feature, if applicable, and excavation/repair date of each such feature; (4) information identifying the ILI vendor and tool; (5) in the case of corrosion tools, Enbridge's determinations whether the tool is capable of detecting Axial Slotting and seam weld anomaly A/B features; (6) the date on which the ILI tool was removed from the pipeline at the conclusion of the ILI; (7) the date Enbridge received the Initial ILI Report from the vendor; (8) the date on which Enbridge completed its preliminary review of the Initial ILI Report; (9) a description of each data quality concern identified by Enbridge in its preliminary review of the Initial ILI Report, and the pipeline section(s) affected by each such identified data quality concern; (10) the date or dates on which Enbridge resolved each identified data quality concern, and a description of how the concern was resolved; (11) the date or dates on which each feature was classified as a Feature Requiring Excavation or non-injurious feature; (12) the date that each Feature Requiring Excavation was added to the Dig List; (13) the date that each Feature Requiring Excavation was scheduled for excavation and repair or mitigation; and (14) the date each Feature Requiring Excavation was actually excavated and repaired. Notwithstanding any corporate record retention policy, Enbridge shall maintain such records until five years after termination of the Consent Decree, and Enbridge shall make such records available to the United States upon request.

(IV) <u>Predicted Burst Pressure/Fitness for Service</u>

42. Except as provided below in this Paragraph 42, Enbridge shall calculate the Predicted Burst Pressure of all Crack features and Corrosion features identified by ILI tools, in accordance with the requirements of this Subsection VII.D.(IV). Enbridge shall not be required to calculate the Predicted Burst Pressure of:

a. any feature that Enbridge verifies was previously excavated and mitigated by installation of a sleeve around the section of pipe where the feature is located;

b. any feature that Enbridge verifies was mitigated by grinding or blasting and recoating, provided that the feature dimensions reported by the ILI, factoring in the ILI tool tolerance, are no larger than the dimensions of the mitigated feature at the time mitigation was performed;

c. any Crack feature for which the ILI tool reported a saturated signal; provided, however, that all such Crack features shall be excavated and repaired or mitigated in accordance with the dig selection criteria for "Crack feature with a Saturated Signal" in Subsection VII.D.(V); or

d. Crack or Corrosion features within dents.

43. For purposes of the Consent Decree, the Predicted Burst Pressure of a feature refers to the lowest pressure in the pipeline at the location of the feature that would be predicted to result in failure of the feature. Enbridge shall calculate the Predicted Burst Pressure of features in accordance with the inputs and procedures in Appendix B.

44. Following each ILI to assess any pipeline for Crack features or Corrosion features, Enbridge shall complete initial Predicted Burst Pressure calculations and initial Remaining Life calculations for all Crack or Corrosion features, as applicable (except as provided in Paragraph 42) as expeditiously as practicable after completing data quality review of the feature and/or pipeline section where the feature is located, in accordance with Subsection VII.D.(II), above, but in no event later than:

a. In the case of any Priority Feature, two Days after receiving the Priority Feature notification referred to in Paragraph 33 above, and

b. In the case of all other features, the earlier of:

(1) 8 weeks after completing data quality review with respect to the feature and/or pipeline section where the feature is located, and

(2) 175 Days after the ILI tool was removed from the pipeline at the conclusion of the ILI.

45. Notwithstanding any corporate record retention policy, Enbridge shall maintain electronic records documenting all Predicted Burst Pressure calculations, and all Remaining Life calculations, including inputs and the dates on which such calculations were completed with respect to particular features, until five years after termination of the Consent Decree. Enbridge shall make such records available to the United States upon request.

(V) <u>Dig Selection Criteria</u>

46. Enbridge shall excavate and repair or mitigate all features that meet dig selection criteria set forth below in this Subsection VII.D.(V). During each excavation required pursuant to this Subsection VII.D.(V), Enbridge shall: (i) inspect all excavated portions of the pipeline and collect field measurements of features on excavated portions of the pipeline, as provided in Paragraph 39; (ii) determine, based on an analysis of field measurement values of feature length and depth and any other relevant field observations, whether such excavated portions of the pipeline contain any additional features, not previously identified on the Dig List, that satisfy one or more of the dig selection criteria identified in this Subsection VII.D.(V); and (iii) repair or mitigate all such additional features in accordance with this Subsection VII.D.(V).

a. Except as provided below in this Subparagraph or in Subparagraphs 46.c - g, Enbridge shall complete the excavation, repair and mitigation of all Features Requiring Excavation in accordance with the timeframes specified in Tables 1 through 5, or other timeframe

authorized pursuant to Paragraph 49, below. In the case of any features that are determined to meet dig selection criteria in this Subsection VII.D.(V) based on an analysis of field measurement values for feature length and depth or other field observations, rather than being placed on the Dig List based on an analysis of ILI-reported values for feature length and depth, Enbridge shall repair or mitigate such features at the time of the excavation.

b. Except as provided below in Subparagraphs 46.c – g, pending completion of the excavation and repair or mitigation of Features Requiring Excavation, Enbridge shall establish and maintain interim pressure restrictions at the location of such features, in accordance with and to the extent provided below in this Subsection VII.D.(V).

c. In lieu of the timetables below in this Subsection VII.D.(V) for excavation and repair or mitigation of Features Requiring Excavation, Enbridge may, subject to the limitations set forth in Subparagraphs 46.e and f, below, and subject to EPA disapproval as provided in Subparagraph 46.m, below, adopt and implement an alternate plan and timetable for excavation and repair or mitigation of specified Features Requiring Excavation ("Alternate Plan") as specified below in this Paragraph 46 if the requirements set forth in either Subparagraph 46.c.(1) or (2) are satisfied.

(1) Enbridge demonstrates that compliance with the applicable timetables below in this Subsection VII.D.(V) for repair or mitigation of the specified features is not practicable due to the extraordinary scope or complexity of the required excavation and repair or mitigation of the specified features. For purposes of this subparagraph, the cost of an excavation and repair or mitigation shall not be sufficient by itself to establish the scope or complexity of a required excavation or the practicability of the applicable timetables in this Subsection VII.D.(V).

(2) Enbridge proposes to replace a section of pipeline, rather than repairing all identified Features Requiring Excavation in that section of pipeline, and it is not practicable to complete replacement of such pipeline section in accordance with the applicable timetables in this Subsection VII.D.(V).

(3) Whenever Enbridge determines that compliance with the circumstances described in Paragraph 46.c.(1) or (2) are present, Enbridge shall, subject to EPA disapproval in accordance with Subparagraph 46.m below, develop and implement an Alternate Plan for excavation and repair or mitigation of such feature, that satisfies the requirements set forth below in this Paragraph 46. An Alternate Plan may include provisions for excavation and repair of more than one Feature Requiring Excavation, subject to the limitations in Subparagraph 46.e. Each such Alternate Plan shall (i) include a timetable for completing, as expeditiously as practicable, excavation and repair or mitigation of each Feature Requiring Excavation covered by the Plan, and (ii) identify all interim measures, including interim pressure restrictions, that are included in the Alternate Plan in order to assure and maintain compliance with the requirements of Subparagraph 46.g.(1).

d. In lieu of one or more requirements below in this Subsection VII.D.(V) relating to the establishment of interim pressure restrictions for particular Features Requiring Excavation, Enbridge may, subject to the limitations set forth in Subparagraphs 46.e. and f, below, and subject to EPA disapproval as provided in Subparagraph 46.m, below, adopt and implement alternate interim pressure restriction requirements for specified Features Requiring Excavation in accordance with Subparagraph 46.g, below, if Enbridge demonstrates that (i) compliance with the interim pressure restriction provisions below in Subsection VII.D.(V)

applicable to the specified features would significantly impair operability of the pipeline pending completion of the repair or mitigation of the specified features, or (ii) that compliance with the interim pressure restrictions below in this Subsection VII.D.(V), will result in significant adverse effects on pipeline integrity in the period prior to mitigation or repair of the feature.

e. During the life of the Consent Decree, Enbridge may not submit more than a total of forty proposals that include either Alternate Plans as provided for in Paragraph 46.c or alternate interim pressure restrictions as provided in Paragraph 46.d , and such proposals may not cover more than a cumulative total of 200 excavations of Joints with Features Requiring Excavation. A single excavation may include two or more contiguous Joints, provided that the maximum number of contiguous Joints in an excavation does not exceed 10.

f. Notwithstanding any other provision of this Paragraph 46, Enbridge may not adopt and implement an Alternate Plan as provided for in Subparagraph 46.c or an alternate pressure restriction as provided for in Subparagraph 46.d for any saturated signal Crack feature that presents a rupture threat. For purposes of this Subparagraph, a feature shall be deemed to present a rupture threat if the ILI-measured length of the feature is equal to or longer than the leak-rupture boundary as determined in accordance PR-218-05404. For purposes of this Consent Decree, the leak-rupture boundary shall be two times the value of the variable “c” as determined in equation numbers 9 and 10 at p. 25 of PR-218-05404 (May 2011).

g. Subject to Subparagraph 46.c, Enbridge may adopt an Alternate Plan governing excavation and mitigation or repair of features, as provided in Subparagraph 46.c, or alternate pressure restriction requirements and timetables as provided in Subparagraph 46.d, for specified features if:

(1) Enbridge completes an Engineering Assessment ("EA"), using best engineering practices and principles, that demonstrates that the Alternate Plan or alternate pressure restriction requirements adopted by Enbridge will achieve a level of safety for all Features Requiring Excavation covered by the Alternate Plan or by the alternate pressure restriction requirements that is greater than or equal to the level of safety achieved through compliance with the requirements of this Subsection VII.D.(V) applicable to such feature or features; and

(2) Within 10 Days after completing the EA and at least 10 Days prior to any deadline for excavation, and repair or mitigation of such feature or features under applicable provisions of this Subsection VII.D.(V), Enbridge provides EPA with a written notification that:

a) describes, in the case of an Alternate Plan as provided for in Subparagraph 46.c, (i) the measures that Enbridge proposes to implement for a specified feature or set of features, including any interim pressure restrictions or other interim measures that will be implemented until excavation and repair or mitigation of features is completed, and (ii) the timelines for implementing all such measures and completing the excavation, and repair or mitigation of such features as expeditiously as practicable; and

b) describes, in the case of any alternative interim pressure restriction as provided in Subparagraph 46.d, the alternate interim pressure restriction as well as the timeline for implementing such alternate interim pressure restriction as expeditiously as practicable,

c) explains how the Alternate Plan or alternate interim pressure restriction adopted by Enbridge meet all applicable requirements and conditions in Subparagraphs 46.c - f above, and

d) includes a copy of the EA, signed by a registered professional engineer who certifies that the EA is accurate and consistent with the requirements of this Paragraph.

h. Any Alternate Plan provided for in Subparagraph 46.c may include, as one element of the Plan, establishment of a temporary pressure restriction pending excavation and repair or mitigation of the feature or features covered by the Plan. For purposes of this Consent Decree, pressure restrictions or other interim measures prior to excavation shall not constitute repair or mitigation of a feature.

i. Nothing in this Subparagraph shall be construed to allow Enbridge to adopt and implement any Alternate Plan or alternate interim that does not comply with all applicable laws and regulations.

j. Unless Enbridge receives a notification in accordance with Subparagraph 46.m that EPA has disapproved an Alternate Plan provided for in Subparagraph 46.c. or an alternate interim pressure restriction and timetable provided for in Subparagraph 46.d, Enbridge shall implement each proposed Alternate Plan and each proposed alternate interim pressure restriction and timetable in accordance with the timetable for implementation of such Alternate Plan or alternate interim pressure restriction as set forth in the applicable notification submitted pursuant to Paragraph 46.g.(2).

k. In each instance for which Enbridge proposes or implements an Alternate Plan as provided for in Subparagraph 46.c or an alternate interim pressure restriction as provided

for in Subparagraph 46.d, Enbridge shall maintain all documentation relating to the selection and implementation of the Alternate Plan or alternate interim pressure restriction, and Enbridge shall make such documents available to EPA upon request, consistent with the requirements of Section X (Information Collection and Retention).

l. In each Semi-Annual Report required pursuant to Paragraph 143, below, Enbridge shall include, for each Lakehead System Pipeline, a complete description of all instances during the reporting period in which Enbridge adopted and/or implemented an Alternate Plan as provided for in Subparagraph 46.c or an alternate interim pressure restriction as provided for in Subparagraph 46.d. For each such instance, the description shall provide all of the following information: (i) a detailed description of each Alternate Plan and each alternate interim pressure restriction adopted and/or implemented by Enbridge during the reporting period, including a description of the number of Features Requiring Excavation covered by each Alternate Plan and each alternate interim pressure restriction, and a description of the timetables for implementing each Alternate Plan or alternate interim pressure restriction; (ii) an explanation of how the conditions in Subparagraphs 46.c – f. are satisfied with respect to each such Alternate Plan and each alternate interim pressure restriction; (iii) a discussion of the basis for selecting each such Alternate Plan and each such alternate interim pressure restriction, including the basis for all alternate timetables established by Enbridge, and a description of relevant supporting information; (iv) documentation of the date Enbridge completed the EA and the date Enbridge provided the notification referred to in Subparagraph 46.g.(2); (v) a detailed description of the analysis comparing the level of safety achieved by each such Alternate Plan and/or the alternate interim pressure restriction with the level of safety that would be achieved through compliance with the requirements of Subsection VII.D.(V); (vi) a description of activities undertaken by

Enbridge during the reporting period to implement each such Alternate Plan and each such alternate interim pressure restrictions, and (vii) the dates on which Enbridge completed implementation of any component of each such Alternate Plan and each such alternate interim pressure restriction during the reporting period. To the extent that any Alternate Plan as provided in Subparagraph 46.c or any alternate interim pressure restriction as provided in Subparagraph 46.d is not fully implemented during the reporting period covered by a Semi-Annual Report, Enbridge shall describe additional implementation activities and update the status of its implementation of the established timetables for such Alternate Plan and the timetables for implementation of any such alternate interim pressure restrictions in subsequent Semi-Annual Reports.

m. If EPA determines that any Alternate Plan as provided for in Subparagraph 46.c or any alternate interim pressure restriction as provided for under Subparagraph 46.d, (i) does not achieve a level of safety equal to or greater than the level of safety achieved for such feature through application of the requirements of Section VII.D.(V), or (ii) does not satisfy any condition or requirement in Subparagraphs 46.c - f, EPA shall notify Enbridge in writing of its disapproval of the Alternate Plan or alternate interim pressure restriction adopted by Enbridge. Following any such written disapproval of an Alternate Plan under Subparagraph 46.c for excavation and mitigation or repair of one or more Features Requiring Excavation, Enbridge shall complete the excavation and repair or mitigation of each feature covered by such Alternate Plan within 30 Days after receipt of notification of the disapproval of the Alternate Plan, or by the applicable deadline as originally established below in this Subsection VII.D.(V) for excavation and repair or mitigation of each such feature, whichever is later. Following any disapproval of any alternate pressure restriction under Subparagraph 46.d

with respect to any Feature Requiring Excavation, Enbridge shall limit the operating pressure at the location of each such feature so that the pressure at each such location does not exceed the level authorized in this Subsection VII.D.(V), unless the feature has already been excavated and mitigated or repaired in accordance with this Subsection VII.D.(V) at that point.

47. Dig-Selection Criteria and Pressure Restriction Requirements for Crack Features: Enbridge shall excavate and repair or mitigate each Crack feature that meets one (or more) of the Dig Selection Criteria set forth in Table 1, in accordance with the timeframes specified in column 2 of Table 1. Enbridge shall also establish pressure restrictions for such Crack features consistent with applicable requirements and timeframes specified in column 3 of Table 1. The requirements set forth in Table 1 are applicable to Crack features in all sections of pipelines, regardless of whether the feature is located in an High Consequence Area or not. Enbridge shall also excavate and repair or mitigate Crack features that intersect or interact with Corrosion features or Geometric features, and establish appropriate pressure restrictions for such interacting features, as provided in Table 5 and Paragraph 59, below.

48. A Crack feature may satisfy more than one dig selection criterion in Table 1 or Table 5. In such a case, Enbridge shall repair or mitigate the feature in accordance with the shortest deadline established under any applicable dig selection criteria. In any case where such a feature is subject to more than one pressure restriction under this Subsection VII.D.(V), Enbridge shall establish the pressure restriction that results in the lowest operating pressure at the location of the feature.

Table 1 – Criteria and Timelines Governing Excavation, Repair and Imposition of Pressure Restrictions for Crack Features		
Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	**Pressure Restriction – Maximum allowable pressure at location of feature until feature is repaired/mitigated**
Crack feature with a saturated signal	As expeditiously as practicable but not to exceed 30 Days	No later than 2 Days after determination that feature meets dig selection criteria, operating pressure at the location of the feature shall be limited to 80% of the highest actual operating pressure at that location during the last 60 Days.
Crack feature with a Predicted Burst Pressure that is less than the Established Maximum Operating pressure ("MOP")	As expeditiously as practicable, but not to exceed 30 Days	No later than 2 Days after determination that feature meets dig selection criteria, operating pressure at the location of the feature shall be limited to the Predicted Burst Pressure ÷ 1.25 or the highest actual operating pressure at that location over the last 60 Days, whichever is lower
Any Crack feature with a depth greater than 70% of the wall thickness **and** Predicted Burst Pressure that is less than the established MOP	As expeditiously as practicable, but not to exceed 30 Days	No later than 2 Days after determination that feature meets dig selection criteria, operating pressure at the location of the feature shall be limited to the Predicted Burst Pressure ÷ 1.25 or the highest actual operating pressure at that location over the last 60 Days, whichever is lower

Table 1 – Criteria and Timelines Governing Excavation, Repair and Imposition of Pressure Restrictions for Crack Features		
Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	**Pressure Restriction – Maximum allowable pressure at location of feature until feature is repaired/mitigated**
Any Crack feature with a Predicted Burst Pressure that is less than 1.25 x the established MOP	Not to exceed 180 Days except as provided below in Paragraph 49	No later than 2 Days after determination that feature meets dig selection criteria, operating pressure at the location of the feature shall be limited to the Predicted Burst Pressure ÷ 1.25
Any Crack feature with a Remaining Life (determined in accordance with Subsection VII.D.(VI), below) that is less than 5 years (i.e., a feature that is predicted to grow, within five years (or less), to a point where its Predicted Burst Pressure will be less than the established MOP).	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days	N/A
Any Crack feature with a Remaining Life that is less than 2 x the planned re-inspection interval.	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/ mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days	N/A

49. a. If Enbridge concludes and documents that it is not practicable to complete the excavation and repair or mitigation of any Feature Requiring Excavation on any Lakehead System Pipeline within any 180 Day period specified in Table 1 through 5 of this Subsection

VII.D.(V), due to seasonal considerations or unusual circumstances, Enbridge may, subject to the requirements specified below in this Paragraph, complete the excavation and repair of such Features Requiring Excavation as expeditiously as practicable after the applicable 180-Day time period, but not to exceed 365 Days from the date the feature was placed on the Dig List. For purposes of this Paragraph, seasonal considerations or unusual circumstances may include: situations in which excavations during winter months will substantially reduce potential adverse impacts of the excavation on wetland ecosystems and the risk that the identified feature will result in a leak or rupture is low; situations in which excavations during periods of low flow conditions will substantially reduce adverse impact on riverine or floodplain ecosystems and the risk that the identified feature will result in a leak or rupture is low; or situations involving excavations near known populations of Threatened or Endangered Species where a delay in the excavation will reduce adverse impacts on the identified species and the risk that the identified feature will result in a leak or a rupture is low. For purposes of this Paragraph, neither the number of required excavations, nor the costs of any required excavation, nor the availability of staff, contractors or equipment, nor the ability to obtain a permit or authorization, shall be considered unusual circumstances that establish the impracticability of completing excavation and repair of features within a 180 Day time period.

b. For each instance in which Enbridge asserts that an excavation is subject to an extended deadline pursuant to the provisions of this Paragraph 49, Enbridge shall include in the next Semi-Annual Report required pursuant to Paragraph 143: (1) a detailed description of the seasonal consideration or unusual circumstances that supports extension of the excavation deadline; (2) an explanation of the specific reasons why the seasonal considerations or unusual

circumstances caused such a delay; and (3) a schedule for completing the excavation within 365 Days from the date the Feature Requiring Excavation was placed on the Dig List.

c. If it is not practicable, as described in this Paragraph, to meet an applicable 180 Day deadline in Tables 1 through 5, above, for excavating and repairing or mitigating any Feature Requiring Excavation, Enbridge shall, prior to expiration of the 180-Day period, establish and/or maintain appropriate pressure restrictions limiting the maximum operating pressure at the location of each such feature, as provided below in this Paragraph 49. The maximum operating pressure at the location of each such feature shall not exceed the following:

(1) In the case of any feature for which a pressure restriction was previously required pursuant to this Subsection VII.D.(V), Enbridge shall limit the maximum allowable operating pressure at the location of the feature as follows:

a) In the case of Geometric Features listed in Table 4 or 5, Enbridge shall reduce the maximum allowable operating pressure at the location of the feature by an additional 5% below the previously established operating pressure restriction;

b) In the case of Crack Features, Enbridge shall recalculate the Predicted Burst Pressure of each feature, taking into consideration the predicted growth of the feature (in terms of both length and depth) between the time of the ILI and the end of the prescribed 180-Day period for repair or mitigation of such feature, and if the recalculated Predicted Burst Pressure of any feature is less than 1.25 x the Established MOP at the location of the feature, Enbridge shall limit the maximum allowable operating pressure at the location of the feature to the recalculated Burst Pressure divided by 1.25.

c) In the case of Corrosion Features, Enbridge shall recalculate the Predicted Burst Pressure of each feature, taking into consideration the predicted growth of the feature (in terms of both length and depth) between the time of the ILI and the end of the prescribed 180-Day period for repair or mitigation of such feature, and if the recalculated Predicted Burst Pressure of any feature is less than 1.39 x the Established MOP at the location of the feature, Enbridge shall limit the maximum allowable operating pressure at the location of the feature to the recalculated Burst Pressure divided by 1.39.

(2) In the case of any Crack Feature or Corrosion Feature for which a pressure restriction was not required under this Subsection VII.D.(V), Enbridge shall limit the operating pressure at the location of the feature to the predicted burst pressure of the feature divided by 1.39.

d. Enbridge shall maintain any pressure restriction referred to in Subparagraph 49.c until excavation and repair or mitigation of the feature has been completed.

e. In each Semi-Annual Report required pursuant to Section IX (Reporting Requirements) of this Consent Decree, Enbridge shall identify all instances in which it was not practicable to complete excavation and mitigation or repair of Features Requiring Excavation on any Lakehead System Pipeline in accordance with a 180-Day timeframe established in Tables 1 through 5 of this Subsection VII.D.(V), the reason it was impracticable to meet the deadline, and the date when excavation and repair was completed or will be completed.

50. <u>Dig-Selection Criteria for Corrosion Features</u>: Enbridge shall excavate and repair or mitigate each Corrosion feature that meets one (or more) of the Dig Selection Criteria set forth

in the Table 2, below, and establish pressure restrictions for identified Corrosion features as provided in Paragraph 52.

a. In the case of Corrosion features located in any HCA, Enbridge shall complete the excavation and repair or mitigation in accordance with the timeframes specified in column 2 of Table 2.

b. In the case of Corrosion features that are not located within an HCA, Enbridge shall complete the excavation and repair or mitigation of the feature in accordance with the timeframe specified in column 3 of Table 2. Enbridge shall also excavate and repair or mitigate Corrosion features that intersect or interact with Crack features, dents, or other Geometric features and establish pressure restrictions for such interacting features, as provided in Table 5 and Paragraph 59 below.

51. A Corrosion feature may satisfy more than one dig selection criterion. In such a case, Enbridge shall repair or mitigate the feature in accordance with the shortest deadline established under any applicable dig selection criteria. In any case where such a feature is subject to more than one pressure restriction under this Subsection VII.D.(V), Enbridge shall establish the pressure restriction that results in the lowest operating pressure at the location of the feature.

Table 2 – Criteria and Timelines Governing Excavation and Repair of Corrosion Features

Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	
	HCA	**Non-HCA**
Any Corrosion feature with a depth greater than 80% of the wall thickness of the joint where the feature is located. Wall thickness shall be determined in accordance with Appendix B, Paragraph 4.	As expeditiously as practicable, but not to exceed 30 Days	As expeditiously as practicable, but not to exceed 30 Days

Table 2 – Criteria and Timelines Governing Excavation and Repair of Corrosion Features		
Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	
	HCA	**Non-HCA**
Any Corrosion feature with a Predicted Burst Pressure is less than the established MOP	As expeditiously as practicable, but not to exceed 30 Days	As expeditiously as practicable, but not to exceed 30 Days
Any Corrosion feature with a Predicted Burst Pressure that is less than 1.39 times the established maximum operating pressure	Not to exceed 180 Days except as provided in Paragraph 49	365 Days
With respect to any Lakehead System Pipeline other than those portions of Original US Line 3 that are located outside an HCA, any Corrosion feature with a depth greater than 50% wall thickness but less than 80% of wall thickness. Wall thickness shall be determined in accordance with Appendix B, Paragraph 4.	Not to exceed 180 Days except as provided in Paragraph 49	365 Days
With respect to those portions of Original US Line 3 that are located outside an HCA, any Corrosion feature with a depth greater than 65% wall thickness but less than 80% of wall thickness. Wall thickness shall be determined in accordance with Appendix B, Paragraph 4.	N/A	365 Days

Table 2 – Criteria and Timelines Governing Excavation and Repair of Corrosion Features		
Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	
	HCA	**Non-HCA**
Any Corrosion feature with a Remaining Life (determined in accordance with Subsection VII.D.(VI), below) that is less than 5 years (i.e., a feature that is predicted to grow, within five years (or less), to a point where its Predicted Burst Pressure will be less than the Established MOP); provided that this dig selection criterion shall not apply to Original U.S. Line 3, which is subject to annual ILIs	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/ mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/ mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days
Any Corrosion feature with a Remaining Life that is less than 2 times the planned re-inspection interval.	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/ mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/ mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days

52. Enbridge shall establish pressure restrictions for Corrosion features identified in Table 2, as provided below in this Paragraph, and Enbridge shall maintain such pressure restrictions until such time as the feature has been excavated and repaired.

a. Within 2 Days after determining that any Corrosion feature has a depth greater than 80% of the wall thickness of the joint where the feature is located, Enbridge shall

limit the operating pressure at the location of such feature to not more than 80% of the highest actual operating pressure at that location during the last 60 Days.

b. Within 2 Days after determining that any feature has a Rupture Pressure Ratio ("RPR") less than 1.00 or a Predicted Burst Pressure that is less than 1.39 times the Established MOP, Enbridge shall limit operating pressure at the location of the feature to the Predicted Burst Pressure divided by 1.39.

53. Dig-Selection Criteria for Axial Slotting, Axial Grooving, Selective Seam Corrosion and Seam Weld Anomaly A/B features.

a. Prior to running each ILI, Enbridge shall determine whether the ILI tool design is adequate for assessing Axial Corrosion features, including Axial Slotting, Axial Grooving and Selective Seam Corrosion, and Crack features identified in the ILI report as Seam Weld Anomaly A/B features.

b. In the case of ILI inspections performed using Circumferential Magnetic Flux Leakage or any other ILI tool determined to be adequate in accordance with the preceding Subparagraph 53.a, Enbridge shall excavate and repair or mitigate features that meet the dig selection criteria in Table 3, below, and establish pressure restrictions for such features as provided in Paragraph 54.

c. In the case of features located within an HCA, Enbridge shall complete the excavation and repair or mitigation of features in accordance within the applicable timeframe specified in column 2 of Table 3.

d. In the case of features not located within an HCA, Enbridge shall complete the excavation and repair or mitigation of features in accordance with the applicable timeframe in column 3 of Table 3. Enbridge shall also excavate and repair or mitigate Axial Slotting, Axial

Grooving, Selective Seam Corrosion features and Seam Weld anomaly A/B features that intersect or interact with Crack features, dents, or other Geometric features and establish pressure restrictions for such interacting features, if applicable, as provided in Table 5, and Paragraph 59, below.

Table 3 – Criteria and Timelines Governing Excavation and Repair of Axial Slotting, Axial Grooving, Selective Seam Corrosion and Seam Weld A/B Anomalies		
Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	
	HCA	**Non-HCA**
Any corrosion morphology associated with Axial Slotting, Axial Grooving or Selective seam Corrosion of or along a longitudinal seam weld, including any such features in the heat affected zone	Not to exceed 180 Days except as provided in Paragraph 49	365 Days
Any Axial Slotting feature located on the pipe body where the Predicted Burst Pressure of the feature is less than or equal to 1.25 x the established MOP	Not to exceed 180 Days except as provided in Paragraph 49	365 Days
Seam Weld Anomaly A/B where the Predicted Burst Pressure of the feature is less than or equal to 1.25 x the established MOP. (This criterion applies to features that have characteristics of Crack-like features but are detected by CMFL tools or other tools capable of detecting axial corrosion)	Not to exceed 180 Days except as provided below in Paragraph 49	365 Days

Table 3 – Criteria and Timelines Governing Excavation and Repair of Axial Slotting, Axial Grooving, Selective Seam Corrosion and Seam Weld A/B Anomalies		
Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	
	HCA	**Non-HCA**
Any Axial Slotting or seam weld anomaly A/B feature with a Remaining Life (determined in accordance with Subsection VII.D.(VI), below) that is less than 5 years (i.e., a feature that is predicted to grow, within five years (or less), to a point where its Predicted Burst Pressure will be less than the established MOP).	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/ mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days
Any Axial Slotting or seam weld anomaly A/B feature with a Remaining Life that is less than 2 x the planned re-inspection interval.	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/ mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days

54. Enbridge shall establish pressure restrictions for features identified in Table 3, as provided below in this Paragraph, and Enbridge shall maintain such pressure restrictions until such time as the feature has been excavated and repaired. Within 2 Days after determining that any feature described in Table 3 has a Rupture Pressure Ratio ("RPR") less than 1.00 or a Predicted Burst Pressure that is less than 1.25 times the Established MOP, Enbridge shall limit

operating pressure at the location of the feature to not more than 80% of the Predicted Burst Pressure.

55. Dig-Selection Criteria for Dents and Other Geometric Features. Enbridge shall excavate and repair or mitigate each dent and other Geometric feature that meets one (or more) of the Dig Selection Criteria set forth in Table 4, and establish pressure restrictions for identified Geometric features as provided in Paragraph 57. In the case of dents or other Geometric features located in any HCA, Enbridge shall complete the excavation and repair or mitigation in accordance with the timeframes specified in column 2 of Table 4. In the case of dents or other Geometric features that are not located within an HCA, Enbridge shall complete the excavation and repair or mitigation of the features in accordance with the timeframe specified in column 3 of Table 4. Enbridge shall also excavate and repair or mitigate dents or other Geometric features that intersect or interact with Crack features or Corrosion features, and establish appropriate pressure restrictions for such interacting features, as provided in Table 5 and Paragraph 59 below.

56. A dent or other Geometric feature may satisfy more than one dig selection criterion. In such a case, Enbridge shall repair or mitigate the feature in accordance with the shortest deadline established under any applicable dig selection criteria. In any case where such a feature is subject to more than one pressure restriction under Subsection VII..D.(V), Enbridge shall establish the pressure restriction that results in the lowest operating pressure at the location of the feature.

<table>
<tr><th colspan="3">Table 4 – Criteria and Timelines for Excavation and Repair of
Dents and Other Geometric Features</th></tr>
<tr><th rowspan="2">Category</th><th colspan="2">Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated</th></tr>
<tr><th>HCAs</th><th>Non-HCAs</th></tr>
<tr><td>A dent located on the top of the pipeline (above the 4 and 8 o’clock positions) with a depth greater than 6% of the nominal diameter of the pipeline</td><td>As expeditiously as practicable, not to exceed 30 Days</td><td>As expeditiously as practicable, not to exceed 60 Days</td></tr>
<tr><td>A dent located on the top of the pipeline (above the 4 and 8 o’clock positions) with a depth that is greater than or equal to:
a. 3% of the nominal diameter of the pipeline, in the case of a pipeline with a nominal diameter greater than or equal to 12 inches, OR
b. 0.250 inches in the case of any pipeline with a nominal diameter less than 12 inches.</td><td>Not to exceed 60 Days</td><td>Not to exceed 180 Days, except as provided above in Paragraph 49</td></tr>
<tr><td>A dent located on the top of the pipeline (above the 4 and 8 o’clock positions) with a depth that is greater than or equal to:
a. 2% of the nominal diameter of the pipeline, in the case of a pipeline with a nominal diameter greater than or equal to 12 inches, OR
b. 0.250 inches in the case of any pipeline with a nominal diameter less than 12 inches.</td><td>Not to exceed 180 Days, except as provided in Paragraph 49</td><td>365 Days</td></tr>
</table>

Table 4 – Criteria and Timelines for Excavation and Repair of Dents and Other Geometric Features		
Category	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	
	HCAs	**Non-HCAs**
A dent on the bottom of the pipeline (below the 4 and 8 o'clock positions) with a depth that is greater than 6% of the nominal diameter of the pipeline.	Not to exceed 180 Days, except as provided in Paragraph 49	Not to exceed 180 Days, except as provided in Paragraph 49
With respect to any Lakehead System Pipeline other than those portions of Line 61 that are not in an HCA, any dent that affects pipe curvature at a girth weld or a longitudinal seam weld where the depth of the dent is greater than or equal to: a. 2% of the nominal diameter of the pipeline, provided that the diameter is equal to, or greater than, 12 inches, OR b. 0.250 inches for any pipeline with a nominal diameter less than 12 inches	Not to exceed 180 Days, except as provided in Paragraph 49	365 Days
With respect to those portions of Line 61 that are located outside of an HCA, any dent that affects the pipe curvature at a girth weld or a longitudinal weld and is shown to have a remaining life that is less than 2 times the planned re-inspection interval determined through a fatigue assessment using a Finite Element Analysis (FEA) approach utilizing the ABAQUS or ANSYS FEA models.	N/A	365 Days

57. Enbridge shall establish pressure restrictions for dents or other Geometric features identified in Table 4, as provided below in this Paragraph 57, and Enbridge shall maintain such pressure restriction until such time as the feature has been excavated and repaired.

a. Within 2 Days after determining that any dent feature has a depth greater than 6% of nominal pipeline diameter (whether the dent is located on the top or bottom of the pipeline), Enbridge shall limit the operating pressure at the location of the feature to not more than 80% of the highest actual operating pressure at that location during the last 60 Days.

b. After identifying any dent feature located on the top of the pipeline that has a depth that is greater than or equal to:

(1) 3 % of the nominal diameter of the pipeline, in the case of a pipeline with a nominal diameter greater than or equal to 12 inches, or

(2) 0.250 inches, in the case of any pipeline with a nominal diameter less than 12 inches,

Enbridge shall limit the operating pressure at the location of the feature to not more than 80% of the highest actual operating pressure at that location during the last 60 Days if the feature is not repaired or mitigated within the applicable timeframe specified in Table 4.

58. Dig-Selection Criteria for Interacting Features: Within 30 Days after receiving any Initial ILI Report, Enbridge shall review the integrated database required under Paragraph 74 for the purpose of determining whether any feature reported by the ILI tool intersects or interacts with a feature of a different feature type that was detected during a previous ILI Tool Run but not repaired or mitigated (e.g., a Crack feature in the same location as a previously reported corrosion or dent feature; a Corrosion feature in the same location as a previously reported dent). Enbridge shall excavate and repair all such intersecting/interacting features that meet the dig

selection criteria set forth below, within the applicable timeframes identified in columns 2 and 3 of Table 5, and establish pressure restrictions as provided in Paragraph 59.

Table 5 – Criteria and Timelines for Excavation and Repair of Intersecting or Interacting Feature Types		
Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	
	High Consequence Area ("HCA")	**Non-HCA**
Any dent located in the top of the pipeline (above the 4 and 8 o'clock positions) that has any indication of metal loss, cracking, or a stress riser.	As expeditiously as practicable, but not to exceed 30 Days	As expeditiously as practicable, but not to exceed 60 Days, for each dent deeper than 2% of the outer diameter of the pipeline; otherwise, excavate and repair within 365 Days
Any dent located in the bottom of the pipeline (below the 4 and 8 o'clock positions) that has any indication of metal loss, cracking, or a stress riser.	Not to exceed 60 Days	180 Days for a dent deeper than 2% of the outer diameter of the pipeline; otherwise, excavate and repair within 365 Days
Any case in which a Crack feature intersects or interacts with a Corrosion feature and the Predicted Burst Pressure of such interacting or intersecting features determined using the CorLAS™ model (assessed as a Crack-like feature) is less than 1.25 x the established maximum operating pressure.	Not to exceed 180 Days, except as provided in Paragraph 49	Not to exceed 180 Days except as provided in Paragraph 49

Table 5 – Criteria and Timelines for Excavation and Repair of Intersecting or Interacting Feature Types		
Dig Selection Criteria	**Maximum time from date that feature is placed on the Dig List until date that feature is repaired/mitigated**	
	High Consequence Area ("HCA")	**Non-HCA**
Any intersecting or interacting Crack/Corrosion feature with a Remaining Life (determined in accordance with Subsection VII.D.(VI), below) that is less than 5 years (i.e., a feature that is predicted to grow, within five years or less, to a point where its Predicted Burst Pressure will be less than the Established MOP).	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days
Any intersecting or interacting Crack/Corrosion feature with a Remaining Life that is less than 2 x the planned re-inspection interval.	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days	365 Days, except that if the Remaining Life of the feature is ≤ 365 Days from the time the feature was added to the Dig List, then repair/mitigation shall be as expeditiously as practicable, and in no event longer than 30 Days

59. Enbridge shall establish a pressure restriction for each interacting or intersecting feature in Table 5, as provided below in this Paragraph 59, and Enbridge shall maintain each such pressure restriction until such time as the feature has been excavated and repaired.

a. Within 2 Days after determining that any intersecting or interacting Crack/Corrosion feature has a Predicted Burst Pressure that is less than 1.25 times the Established

MOP, Enbridge shall limit operating pressure at the location of the feature to not more than 80% of the Predicted Burst Pressure.

b. Within 2 Days after determining that any dent has an indication of cracking, metal loss or a stress riser, Enbridge shall limit operating pressure at the location of such feature to not more 80% of the highest actual operating pressure at the location of the feature over the last 60 Days.

(VI) <u>Remaining Life Determinations/Re-inspection Intervals</u>

60. Following each ILI to evaluate Crack features and each ILI to evaluate Corrosion features on any pipeline, Enbridge shall determine the Remaining Life of each detected Crack and Corrosion feature that does not meet any of the dig selection criteria in Subsection VII.D.(V) (other than dig selection criteria based on Remaining Life of the feature), except as provided below in Paragraph 61. For purposes of this Consent Decree, the Remaining Life of any Crack or Corrosion feature refers to the time period required for the feature to grow to the point where the Predicted Burst Pressure of the feature is less than or equal to the Established MOP, as determined in accordance with this Subsection.

61. Enbridge shall not be required to calculate the Remaining Life of:

a. any feature described in Subparagraphs 42.a - d,

b. any feature that is placed on the Dig List, provided that Enbridge completes excavation and repair or mitigation of the feature in accordance with the timeframes specified in this Subsection VII.D.(V), or

c. any feature that is stable, i.e. has not grown since the last ILI, provided that the frequency and magnitude of pressure cycles in the pipeline segment where the feature is

located are not significantly different than the frequency and magnitude of pressure cycles in such pipeline segment at the time of the prior ILI.

62. Enbridge shall determine the Remaining Life of each Crack feature, using representative values of actual operating parameters of the pipeline or pipeline segment, as applicable, including the number and magnitude of pressure cycles.

a. In determining the number and magnitude of pressure cycles, Enbridge shall utilize the worst cycling quarter between the most recent valid crack ILI run and the immediately prior valid crack ILI run. For purposes of this subparagraph, the worst cycling quarter shall reflect the worst combination of cycling frequency and cycling magnitude for the applicable line or line segment during the period between the successive ILI runs.

b. If Enbridge increases the operating pressure limit in any segment of a Lakehead System pipeline after determining the Remaining Life of Crack features in accordance with this Paragraph, Enbridge shall recalculate the Remaining Life of the unrepaired Crack features remaining in such line segment.

63. Enbridge shall calculate the Remaining Life of each Crack feature using either a fatigue crack growth model or an SCC crack growth model, whichever yields the fastest projected growth rate and the shortest Remaining Life.

64. In order to determine the Remaining Life of Corrosion features, Enbridge shall calculate a corrosion growth rate ("CGR") for each pipeline based on an evaluation of changes in Corrosion features detected in successive ILIs in the case of each pipeline that has had at least one previous ILI to detect Corrosion features. In the case of any new pipeline that has not previously had an ILI to detect Corrosion features, Enbridge shall use a historical CGR estimate, which shall not be less than .005 inch per year.

65. For each pipeline, the maximum interval between successive ILIs to assess Crack features shall not exceed one-half of the shortest Remaining Life of any unrepaired Crack feature in the pipeline, calculated as provided above. For each pipeline, the maximum interval between successive ILIs to assess Corrosion features shall not exceed one-half of the shortest Remaining Life of any unrepaired Corrosion feature in the pipeline, calculated as provided above in this Subsection VII.D.(VI).

66. Notwithstanding any other provisions in the Consent Decree, the maximum interval between successive ILIs for any particular feature type (Crack, Corrosion, or Geometric feature) on each pipeline in the Lakehead System shall not exceed 5 years, except as provided below in this Paragraph 66. Until Original US Line 3 is taken out of service and depressurized as provided in Paragraph 22.a, Enbridge shall complete ILIs for each feature type on an annual basis, except that Enbridge need not conduct ILIs during the final 12 months that Original US Line 3 is in operation.

E. MEASURES TO PREVENT SPILLS IN THE STRAITS OF MACKINAC

67. *Applicability*: The requirements set forth in this Subsection VII.E shall apply to the section of Lakehead System Line 5 oil transmission pipeline ("Line 5") that crosses the Straits of Mackinac ("Straits") between Michigan's upper and lower peninsulas. Specifically, such requirements shall apply to the 4.09-mile portion of Line 5 consisting of two 20-inch diameter seamless pipelines that cross the Straits ("Dual Pipelines").

68. *Span Management Program*

a. Enbridge shall operate and maintain the Dual Pipelines to ensure that currents or ice do not impair the integrity of either pipeline. Enbridge shall also assure that each of the Dual Pipelines is well-supported in areas where the pipeline is suspended above the lake

bed ("spans"). Further, Enbridge shall operate and maintain the Dual Pipelines to reduce the risk of a vessel's anchor puncturing, dragging or otherwise damaging the pipeline. Nothing in this Paragraph shall be construed to limit or affect any liability of Enbridge in the event of any unpermitted discharges from the Dual Pipelines.

b. As of the Effective Date, Enbridge shall ensure that all sections of the Dual Pipelines located within 65-feet of water or less are continuously covered in a buried trench on the floor of the Straits. For uncovered portions of the pipelines in water deeper than 65 feet, Enbridge shall at all times support and anchor the pipelines with a series of screw-anchor pipe supports ("Screw Anchors") that are placed so that the maximum distance between adjacent Screw Anchors shall not exceed 75 feet. Each Screw Anchor shall hold the pipelines in place by means of a steel saddle connected to two ten-foot-long steel screws, with each screw augured into the floor of the Straits on either side of the pipelines.

c. Enbridge shall complete periodic visual inspections of each of the Dual Pipelines as provided below in this Paragraph to ensure compliance with the requirements of Subparagraphs 68.a and 68.b, above. Enbridge shall complete the initial underwater visual inspection of each of the Dual Pipelines no later than July 31, 2016. As part of the initial visual inspection of each of the Dual Pipelines, Enbridge shall complete a survey of biota, including but not limited to mussels, present on the Dual Pipelines.

d. In the event that the underwater inspection reveals one or more areas where a pipeline is not adequately covered or supported, Enbridge shall undertake repairs to address such areas no later than 60 Days after the completion of the inspection.

e. Within 60 Days of completing the repairs, Enbridge shall submit to EPA a report summarizing the findings of its inspection and any repair work done as a result of the inspection.

f. After the initial visual underwater inspection pursuant to Paragraph 68.c, Enbridge shall complete periodic underwater visual inspections of each of the Dual Pipelines at intervals not to exceed 24 months, until termination of the Consent Decree. All such re-inspections shall be completed by July 31 of the year in which the inspection is required. Following each such re-inspection of the Dual Pipelines, Enbridge shall complete any necessary repairs in accordance with Subparagraph 68.d and submit reports in accordance with Subparagraph 68.e.

69. *Biota Investigation*

a. Enbridge shall conduct an investigation to assess whether any of the biota found on the pipeline, including but not limited to mussels, impacts the integrity of the Dual Pipelines. Specifically, Enbridge shall assess whether the accumulation of mussels and other biota have impacted the integrity of the pipelines' coating or the underlying metal, including areas where there are openings or "holidays" in the pipeline coating. The investigation shall evaluate whether the mussels and other biota are creating a corrosive environment by, among other things, fostering the growth of anaerobic sulfate-reducing bacteria ("SRB") that may cause metal loss. Finally, the investigation should evaluate whether mussels and other biota are introducing features that may threaten the integrity of either of the Dual Pipelines due to the weight of such biomass or the pressure caused by current or ice movement around such biomass in areas where the pipelines are suspended above the floor of the Straits.

b. No later than 60 Days after the initial visual underwater inspection referred to in Paragraph 68.c, Enbridge shall submit to EPA for approval a proposed plan for the investigation described in Subparagraph 69.a. The proposed plan shall identify the employees, consultants and contractors that will perform the investigation and describe the methods that they will use in inspecting, sampling, and evaluating whether biota have any adverse impact on pipeline coatings or on the Dual Pipelines. The proposed plan shall also propose a schedule for completing the investigation.

c. Upon receipt of an EPA's approval of its plan and schedule, Enbridge shall implement the plan in accordance with the schedule. No later than 60 Days after the completion of its investigation, Enbridge shall submit a final report to EPA for review and approval, describing the findings and results of the investigation. In the event that the investigation finds that zebra mussels and other biota have impaired, or threaten to impair, the Dual Pipelines, Enbridge shall supplement its final report with a proposed work plan to address such impairments, together with a proposed schedule for completing such work. Upon receipt of EPA approval of the work plan and schedule, Enbridge shall perform the work in accordance with the plan and schedule. Within 60 Days of completion of the work, Enbridge shall submit a final report documenting the work to EPA for review and comment.

70. *In-Line Inspections of the Dual Pipelines*. The ILI schedule required pursuant to Paragraph 29 above, shall provide for Enbridge to complete valid ILIs of the Dual Pipelines in accordance with the following schedule:

a. ILIs to detect, characterize, and size Corrosion Features and circumferential Crack Features on each of the Dual Pipelines completed no later than July 30, 2017.

b. An ILI to detect, characterize, and size Geometric Features on each of the Dual Pipelines completed no later than one year following the Effective Date of the Consent Decree, or five years after the most recently completed inspection to detect and size Geometric Features on each of the Dual Pipelines, whichever is later.

71. *Investigation and Repair of axially-aligned features.* Not later than December 31, 2017, Enbridge shall undertake and complete the actions in either Subparagraph 71.a or 71.b below to reduce or eliminate the potential that any axially-aligned Crack features in the Dual Pipelines will result in a leak or rupture:

a. Enbridge shall conduct an investigation of the Dual Pipelines using an ILI tool that is most appropriate for detecting and sizing axially-aligned Crack features in the Dual Pipelines. In the event that the ILI tool identifies features that are Features Requiring Excavation, Enbridge shall complete the repair of such features on each of the Dual Pipelines as expeditiously as practicable. Such repair shall be completed in accordance with Subsection VII.D, above.

b. In lieu of the actions set forth in the preceding subparagraph, Enbridge may elect to perform a hydrostatic pressure test of each of the Dual Pipelines. In the event that Enbridge selects this option, Enbridge shall comply with the procedures set forth in Section VII.C (Hydrostatic Pressure Testing) of this Consent Decree. Enbridge shall provide EPA with a copy of the test plan and procedure at least 90 Days before commencing the hydrostatic pressure test.

72. *Pipeline Movement Investigation*

a. Within 40 Days of identifying one or more cracks in the Dual Pipelines that qualify as a Feature Requiring Excavation, Enbridge shall submit to EPA for approval a proposed plan and schedule to investigate the cause of such cracking. The investigation shall

include a non-destructive examination ("NDE") of the pipeline to determine whether the cracking is associated with stress corrosion cracking or some other form of cracking. Further, the investigation shall consider and determine whether the cracking has been caused by the physical movement of the pipeline. Unless Enbridge can affirmatively rule out the possibility of pipeline movement, the proposed plan shall require the installation of instrumentation on the pipeline to detect and track movement of the pipeline over time.

b. Upon receipt of the EPA's approval of Enbridge's plan and schedule, Enbridge shall conduct the investigation in accordance with the approved plan and schedule. Within 30 Days of completing the investigation, Enbridge shall submit to EPA, for review and approval, a final report with proposed findings and conclusions. The report shall identify corrective measures, if any, needed to repair or remediate the cause of the cracking and the schedule for completion. In the event that the cause of the cracking can be identified and corrected, Enbridge shall undertake and complete such corrective measures as expeditiously as practicable, but in no event later than 270 Days after the completion of the investigation.

73. *Quarterly Inspection Using Acoustic Leak Detection Tool:* Within 90 Days of the Effective Date, Enbridge shall conduct an inspection of each Dual Pipeline using an acoustic ILI tool that is capable of detecting sounds associated with small leaks as the tool travels through the pipelines. After completing the initial investigation, Enbridge shall continually repeat the inspection once per calendar quarter for the duration of the Consent Decree. In the event that Enbridge should detect a leak, Enbridge shall immediately shut down and sectionalize the pipeline until the leak is repaired.

F. DATA INTEGRATION

74. As of the Effective Date, Enbridge shall operate and maintain a feature integration database ("OneSource") for all pipelines in the Lakehead System. The OneSource shall integrate information about Crack features, Corrosion features, and Geometric features from multiple in-line investigations of the pipelines and field measurement devices. Further, upon completion of the update required under Paragraph 77 below, the OneSource shall integrate additional information about Crack features, Corrosion features, and Geometric features collected through field measurements. The OneSource shall enable pipeline integrity-management personnel to identify and track any changes to any feature detected by an ILI tool on successive investigations ("Tool Runs") of the pipeline. In addition, the OneSource shall enable such personnel to identify and evaluate features detected by different types of ILI tools that may overlap or otherwise interact.

75. Enbridge's integrity management personnel, including but not limited to personnel responsible for identifying Features Requiring Excavation in accordance with Subsections VII.D (III) - (VI), shall be able to access and view the OneSource from their desktop computers and laptops, and such personnel shall be able to search for, and view, a schematic image of each Joint of each Lakehead System Pipeline. Each schematic image of a Joint shall show:

a. Information about the construction of each Joint, including (1) the location of the long-seam, (2) the type of long-seam, (3) the location of the girth welds, (4) the type of Joint coating, (5) the diameter of the Joint, (6) the specified minimum yield strength (SMYS) of the Joint, (7) the pipe manufacturer, (8) the year of manufacture, (9) the wall-thickness of the Joint based upon the manufacturing specification, and (10) whether the joint is located within an HCA;

b. Information about each ILI tool that Enbridge has used to investigate the Joint, including (1) the type of tool, (2) the supplier of the tool, and (3) the date of the Tool Run;

c. Information about each feature detected by each ILI tool, including (1) the predicted length and location of each feature taking into account the uncertainty of the ILI tool, (2) the predicted depth of each feature taking into account the uncertainty of the ILI tool, (3) each feature's type and classification, (4) the rupture pressure ratio and/or the Predicted Burst Pressure of the feature, and (5) any comments made by ILI vendor regarding such feature; and

d. Other pertinent details, including (but not limited to) the average wall thickness of the Joint as determined by ultra-sonic wall measurement tools.

76. With respect to each type of ILI Tool, the OneSource shall include at least two successive ILI data sets – one data set from the most recently completed ILI Tool Run and other data set from the second most-recently completed ILI Tool Run. Once a data set for a type of ILI Tool has been superseded by two successive ILI Tool Runs of that tool type, Enbridge may elect to delete the data set from the OneSource, although Enbridge shall continue to preserve the data in accordance with Section X (Information Collection and Retention) of the Consent Decree relating to document preservation requirements.

77. Update of OneSource Database:

a. Within 365 Days of the Effective Date, Enbridge shall complete an update of the OneSource to add and integrate information from inspections of pipelines in the Lakehead System using non-destructive examination ("NDE") methodologies. This update shall be limited to Joints that have been excavated and inspected within the 3-year period prior to the entry of the Consent Decree.

b. For all such Joints, the updated OneSource will enable Enbridge's integrity management personnel, including but not limited to personnel responsible for identifying Features Requiring Excavation in accordance with Paragraph 35, to overlay and compare information collected from ILI tools with the information collected from NDEs conducted in the field. The latter information shall include:

(1) Information about all repairs to the Joint, including (a) the types of repairs, (b) the location of sleeve-type repairs, and (c) the depth and size of all grinding-related repairs; and

(2) Information about all unrepaired Crack features, Corrosion features and Geometric features, irrespective of whether such features were detected by ILI tools or not, including (a) the size and location of each feature, (b) the depth of each feature, (c) each feature's type and classification, (d) the field-determined rupture pressure ratio and/or Predicted Burst Pressure of the feature.

c. The updated OneSource shall also include a hyperlink by which Enbridge personnel, including but not limited to personnel responsible for identifying Features Requiring Excavation in accordance with Paragraph 35, can readily access other electronic databases that contain information collected during the NDE, including photographs of features and field notes taken by NDE personnel.

d. After completing the initial update of the OneSource, Enbridge shall continuously update the database with information collected from new NDE investigations. Enbridge shall add such information to the OneSource as expeditiously as practicable, but in no event shall Enbridge take more than 60 Days after completing all field investigations relating to

an ILI Tool Run to update the OneSource to include all data collected from the field investigations.

78. *Mandatory Use of the Data Integration Database to Prepare Dig List*.

a. Upon completion of a new ILI Tool Run, Enbridge shall update the OneSource to include the new ILI data, provided such data has passed through the quality-control procedures and determined by Enbridge to be reliable. Enbridge shall add the data to the OneSource as quickly as possible, but in no event later than 29 Days after the Enbridge receives the Initial ILI report.

b. Once new ILI data has been added to the OneSource, Enbridge shall review such data for the purpose of identifying any overlapping, or otherwise interacting, features that may qualify as Features Requiring Excavation within the meaning of Paragraph 35. Enbridge shall complete such review as soon as is practicable, but in no event later than 180 Days after the ILI tool is removed from the pipeline.

G. LEAK DETECTION AND CONTROL ROOM OPERATIONS

(I) <u>Assessment of Alternative Leak Detection Technologies</u>

79. Within 120 Days of the Effective Date, Enbridge shall prepare and submit a report to EPA regarding the feasibility and performance of alternative leak detection technologies ("ALD Report"). The technologies discussed in the ALD Report shall include:

a. Computational pipeline monitoring technologies that monitor the pressure wave created by different size leaks and ruptures;

b. External leak detection technologies, including fiber-optic cable distributed temperature sensing systems, fiber-optic distributed acoustic sensing systems, vapor sensing tubes, electrochemical hydrocarbon sensing cables, and any and all other technologies assessed by

Enbridge as of the Effective Date using the External Leak Detection Experimental Research (ELDER) test apparatus; and

c. Aerial-based technologies, including (but not limited to) infrared camera-based systems, laser-based spectroscopy, flame ionization detection systems, and any and all other technologies assessed by Enbridge as of the Effective Date.

80. With respect to each of the above technologies, the ALD Report shall

a. describe all laboratory and field tests/evaluations that Enbridge has conducted within the past five years, as well as all laboratory and field investigations that Enbridge considered or relied upon as a basis for any conclusions in the ALD Report;

b. summarize the findings of all such tests/evaluations;

c. identify all reports that Enbridge has submitted to PHMSA under the Lakehead Plan regarding ALD technology and discuss developments since such submissions; and

d. provide an assessment of the feasibility or limitations of the ALD technology in different settings or environments, including underwater pipeline segments.

(II) <u>Report on Feasibility of Installing External Leak Detection System at the Straits of Mackinac</u>

81. Within 180 Days of the Effective Date, Enbridge shall submit to EPA for review a report assessing the feasibility of installing an alternative leak detection system at the Straits of Mackinac. For the purposes of conducting this assessment, Enbridge shall evaluate the following leak detection technologies: fiber-optic cable (acoustic and temperature), vapor sensing tube, negative pressure wave, and hydrocarbon sensing cable. Such technologies would supplement Enbridge's existing MBS Leak Detection System, as well as the leak detection systems that

Enbridge is required to implement under Paragraph 73 (Acoustic Leak Detection Tool) and Paragraph 102 (Rupture Detection System) of the Consent Decree.

82. With respect to each technology, the report required by Paragraph 81 shall evaluate (i) the potential effectiveness of the technology in detecting leaks and ruptures of different sizes, (ii) the practicability of deploying the technology in the Straits of Mackinac, (iii) the practicability of long-term operation and maintenance of the technology, and (iv) the net present cost of the technology, taking into account the initial capital cost to install the technology and the annual expense to operate and maintain the technology.

83. The report required pursuant to Paragraph 81 shall compare the relative performance of each of the evaluated technologies with respect to each of the factors enumerated in Paragraph 82 and any other factors that Enbridge may decide to add to its analysis. As a basis for comparison, Enbridge shall also evaluate the risks and benefits of each technology in the Straits of Mackinac versus the risks and benefits of continuing to rely solely upon the MBS Leak Detection System and those systems that Enbridge is required to implement under this Consent Decree.

(III) Requirements for New Lakehead Pipelines and Replacement Segments

84. *Applicability.* The requirements set forth in this Subsection VII.G.(III) shall apply to any New Lakehead Pipeline or any Replacement Segment of any pipeline that is part of the Lakehead System. For the purposes of this Consent Decree, the terms "New Lakehead Pipeline" and "Replacement Segment" shall mean the following:

a. The term "New Lakehead Pipeline" shall mean the pipeline that will replace Original US Line 3, as well as mean any new pipeline that will replace one of the other pipelines that comprise the Lakehead System. In the event that Enbridge resumes operation of

any other Lakehead System Pipeline that may be replaced after the Effective Date, the term "New Lakehead Pipeline" shall also apply to such pipeline or pipelines.

b. The term "Replacement Segment" shall mean any modification of a Lakehead System Pipeline after the Effective Date for the purpose of (1) adding one (or more) pump stations to the pipeline or (2) replacing a section of the pipeline with a volume capacity greater than 45,000 cubic meters ("m^3").

85. *Installation of flowmeters*: Each New Lakehead Pipeline or Replacement Segment shall have a flowmeter at all locations where oil (a) enters into the pipeline, (b) leaves the pipeline, or (c) passes through a pump station. In addition, Enbridge shall install flowmeters at additional locations between pump stations as needed to comply with the requirements of Paragraphs 88 or 90 below. All flowmeters shall be designed and constructed to monitor flow under all conditions, including during Startup and Shutdown, and to provide continuous real-time data to Enbridge's Supervisory Control and Data Acquisition System ("SCADA") and MBS Leak Detection System, as well as to the Rupture Detection System required under Paragraph 102 of this Consent Decree.

86. *Installation of flowmeters on pipelines that utilize In-Line Batch Interface Tools:* For any New Lakehead Pipeline or Replacement Segment where Enbridge will deploy In-Line Batch Interface Tools for the purpose of physically separating products in the pipeline, Enbridge shall design and operate all flowmeters so that they shall not be taken out of service as the result of an In-Line Batch Interface Tool moving past the location of the flowmeter.

87. *Installation of other Instrumentation*: In addition to the flowmeters required under Paragraph 85, each New Lakehead Pipeline or Replacement Segment shall include instrumentation for measuring temperature and pressure as described in Subparagraphs 87.a and

87.b below. All instruments for measuring temperature and pressure shall provide continuous real-time data to Enbridge's SCADA, MBS Leak Detection System, and Rupture Detection System, including during Startup and Shutdown periods.

a. *Pressure Transducer/transmitter:* Enbridge shall install a pressure transducer/transmitter at all of the following locations:

(1) each location where oil enters the pipeline;

(2) each location where oil leaves the pipeline for delivery purposes or for transfer to another pipeline;

(3) each location where a Column Separation would be expected to occur based on Enbridge's hydraulic studies of the pipeline;

(4) each segment of pipeline between adjacent flowmeters, and

(5) each segment of pipeline between two remotely-controlled valves where oil may be "shut in" during a shutdown of the pipeline ("Valve Segment").

b. *Temperature transducer/transmitters:* Enbridge shall install a skin-based temperature transducer/transmitter at all of the following locations:

(1) each location where Enbridge shall install a flowmeter in accordance with Paragraph 85, and

(2) each Valve Segment.

88. *Establishment of MBS Segments:* For the purposes of this Consent Decree, the term "MBS Segment" shall refer to each segment of a pipeline between two adjacent flowmeters. Enbridge shall design and construct each New Lakehead Pipeline and Replacement Segment to ensure that the volume of oil within each MBS Segment created by, or included within, the New Lakehead Line or Replacement Segment shall not exceed 45,000 cubic meters ("m3"), except in

those instances where Enbridge demonstrates compliance with the leak detection sensitivity requirements in Paragraph 89 below.

89. *Leak Detection Sensitivity Requirements*

a. New US Line 3: Enbridge shall design and construct the New Lakehead Pipeline that will replace Original US Line 3 ("New US Line 3") to meet all of the leak detection sensitivity targets in the table below with respect to each MBS Segment created by, or included within, the New US Line 3. Such targets shall apply only during periods when the fluid in the MBS Segment is in a Steady State. Enbridge shall use the criteria set forth in API Publication 1149 ("Pipeline Variable Uncertainties and Their Effects on Leak Detectability") to estimate the ability of the MBS Leak Detection System to achieve each of the targets set forth in the table below.

Type of MBS Alarm	**Leak Detection Design and Construction Target for New US Line 3**
5-Minute Alarm	MBS Leak Detection System shall detect and alarm if, within any rolling 5-minute period, it cannot account for 7-13% of the volume of oil injected or pumped into the MBS Segment.
20-Minute Alarm	MBS Leak Detection System shall detect and alarm if, within any rolling 20-minute period, it cannot account for 3-4% of the volume of oil injected or pumped into the MBS Segment.
2-hour Alarm	MBS Leak Detection System shall detect and alarm if, within any rolling 2-hour period, it cannot account for 3% of the volume of oil injected or pumped into the MBS Segment.
24-hour Alarm	MBS Leak Detection System shall detect and alarm if, within any rolling 24-hour period, it cannot account for 2% of the volume of oil injected or pumped into the MBS Segment.

b. Other Lakehead Projects: Enbridge shall design and construct any Replacement Segment or New Lakehead Pipeline other than New US Line 3 to meet all of the leak detection sensitivity targets in the table below with respect to each MBS Segment created by, or included within, the Replacement Segment or New Lakehead Pipeline. Such targets shall

apply only during periods when the fluid in the MBS Segment is in a Steady State. Enbridge shall use the criteria set forth in API Publication 1149 to estimate the ability of the MBS Leak Detection System to achieve each of the targets set forth in the table below.

Type of MBS Alarm	**Leak Detection Design and Construction Target for other Lakehead Projects**
5-Minute Alarm	MBS Leak Detection System shall detect and alarm if, within any rolling 5-minute period, it cannot account for 7-25% of the volume of oil injected or pumped into the MBS Segment.
20-Minute Alarm	MBS Leak Detection System shall detect and alarm if, within any rolling 20-minute period, it cannot account for 3-10% of the volume of oil injected or pumped into the MBS Segment.
2-hour Alarm	MBS Leak Detection System shall detect and alarm if, within any rolling 2-hour period, it cannot account for 3-5% of the volume of oil injected or pumped into the MBS Segment.
24-hour Alarm	MBS Leak Detection System shall detect and alarm if, within any rolling 24-hour period, it cannot account for 2-3% of the volume of oil injected or pumped into the MBS Segment.

90. *Demonstration of Compliance with Leak Detection Sensitivity Design and Construction Requirements*: For each MBS Segment on a New Lakehead Pipeline or Replacement Segment with the capacity to hold more than 45,000 m^3 of oil, Enbridge shall demonstrate compliance with the leak detection sensitivity design and construction requirements in Subparagraphs 89.a and 89.b. Specifically, with respect to New US Line 3, Enbridge shall demonstrate, in accordance with Subparagraphs 90.a and 90.b, that the MBS Leak Detection System is able to detect any and all leaks or ruptures within the MBS Segment that would meet, or exceed, one or more of the leak detection targets set forth in the table in Paragraph 89.a, above, for the design and construction of New US Line 3. Further, with respect to any Replacement Segments or New Lakehead Pipelines other than New US Line 3, Enbridge shall demonstrate, in accordance with Subparagraphs 90.a and 90.b, that the MBS Leak Detection System is able to detect any and all leaks or ruptures within the MBS Segment that would meet, or exceed, one or

more of the leak detection targets established in accordance with Subparagraph 89.b above, for the design and construction of the Replacement Segment or New Lakehead Pipeline. If Enbridge is unable to make such a demonstration in accordance with Subparagraphs 90.a and 90.b, Enbridge shall comply with the requirements of Subparagraph 90.c, below.

a. Within 90 Days of Initial Linefill of a New Lakehead Pipeline or Replacement Segment, Enbridge shall submit to EPA a plan to demonstrate the ability of the MBS Leak Detection System to detect leaks or ruptures within each MBS Segment that has a capacity to hold more than 45,000 m^3 of oil. The plan shall require Enbridge to conduct testing using the fluid-withdraw method except where the use of that method is not feasible due to a lack of on-site piping and/or tanks necessary to complete such testing. Where the use of the fluid withdraw method is not feasible for these reasons, Enbridge shall make the required demonstration using a software-based simulated leak methodology of the type described in API Publication 1130. The plan shall include a schedule for completing all required testing, but in no event shall the schedule provide for the completion of testing later than 12 months after completion of Initial Linefill. The plan shall require Enbridge to collect data with respect to each type of MBS Alarm (i.e. the 5-minute alarm, the 20-minute alarm, the 2-hour alarm, and the 24-hour alarm) demonstrating (1) the sensitivity of the MBS Leak Detection System in detecting leaks and ruptures and (2) the reliability of such system in terms of its false alarm rate. Further, Enbridge shall collect data demonstrating the relationship between these two variables, showing how the false alarm rate will rise (or fall) in response to adjustments made by Enbridge to the sensitivity of the MBS Leak Detection System in detecting leaks or ruptures ("S-R Performance").

b. Within 30 Days of submitting the plan to EPA, Enbridge shall commence testing in accordance with its plan and schedule. Within 30 Days after completion of the testing, Enbridge shall submit to EPA a report presenting the results of the testing. In its report, Enbridge shall present its data sets in graphical form (as illustrated in Appendix F) showing the S-R Performance curve for each of the four types of MBS alarm. With respect to New US Line 3, Enbridge shall have demonstrated compliance with the design and construction targets in Paragraph 89.a. if, based upon the S-R Performance curves, Enbridge proves its MBS Leak Detection System is able to detect any and all leaks that would meet, or exceed, the targets in Paragraph 89.a. without regard to the number of false alarms occurring at those target sensitivities. Likewise, with respect to any Replacement Segment or New Lakehead Pipeline other than New US Line 3, Enbridge shall have demonstrated compliance with the design and construction targets in Paragraph 89.b. if, based upon the S-R Performance curves, Enbridge proves its MBS Leak Detection System is able to detect any and all leaks that would meet, or exceed, the targets in Paragraph 89.b. without regard to the number of false alarms occurring at those target sensitivities.

c. In the event that the testing demonstrates that one or more tested MBS segments does not meet the leak detection sensitivity design and construction requirements mandated under Paragraph 89, Enbridge shall, concurrently with submission of the report required in Paragraph 90.b, submit to EPA for approval a proposed plan and schedule for implementing corrective actions that will assure compliance with the MBS size limitation in Paragraph 88 or assure that MBS Leak Detection System is able to detect any all and all leaks or ruptures within the MBS Segment that would meet, or exceed, one or more of the leak detection sensitivity targets in Paragraph 89, based upon the S-R Performance curves described in the

preceding paragraph. Upon approval by EPA, Enbridge shall implement the approved plan and schedule.

91. *Establishment and Optimization of Alarm Thresholds*: Except as otherwise provided in Paragraph 103 ("24-Hour Alarm"), Enbridge shall, in the interest of reducing false alarms and improving the reliability of the MBS Leak Detection System, set alarm thresholds for the MBS Leak Detection System at any level that Enbridge deems appropriate, subject to the limitations and requirements set forth in Subparagraphs 91.a - c, below.

a. No later than Initial Linefill of New US Line 3 or any other New Lakehead Pipeline or Replacement Segment, Enbridge shall ensure that each MBS Segment of such pipeline or segment be subject to an alarm threshold for each of the four types of MBS Alarms (i.e. the 5-minute alarm, the 20-minute alarm, the 2-hour alarm, and the 24-hour alarm). In no event shall an alarm threshold applicable to Steady State operations be, at any time, less stringent than the minimum alarm thresholds set forth in the table below,

Type of MBS Alarm	**MBS Alarm Threshold Requirements During All Periods of Steady State Operations**
5-Minute Alarm	MBS Leak Detection System shall alarm if, within any rolling 5-minute period, it cannot account for 30% or more of the volume of oil injected or pumped into the MBS Segment.
20-Minute Alarm	MBS Leak Detection System shall alarm if, within any rolling 20-minute period, it cannot account for 15% or more of the volume of oil injected or pumped into the MBS Segment.
2-hour Alarm	MBS Leak Detection System shall alarm if, within any rolling 2-hour period, it cannot account for 5% or more of the volume of oil injected or pumped into the MBS Segment.
24-hour Alarm	MBS Leak Detection System shall alarm if, within any rolling 24-hour period, it cannot account for 3% or more of the volume of oil injected or pumped into the MBS Segment.

b. Within one year of Initial Linefill of New US Line 3 or any other New Lakehead Pipeline or Replacement Segment, Enbridge shall conduct and complete a study to

optimize the alarm thresholds established in accordance with the preceding Subparagraph. Based upon the results of the study, Enbridge shall set an alarm threshold that optimizes the trade-off between the competing goals of reducing the number of false alarms and improving the sensitivity of the MBS Leak Detection System in detecting leaks and ruptures. In no event shall Enbridge adjust an alarm threshold so that it is less sensitive to leaks and ruptures that the minimum alarm thresholds set forth in the table in the preceding Subparagraph.

c. Within 60 Days of completing the optimization study, Enbridge shall submit a report to EPA that presents the results of the optimization study, identifies the optimized alarm thresholds established by Enbridge, and explains the basis for such thresholds. To the extent that the optimized alarm thresholds are more sensitive to leaks and ruptures than the minimum alarm thresholds set forth in Subparagraph 91.a, above, Enbridge is not required to implement the optimized thresholds under this Consent Decree, except for the optimized threshold applicable to the 24-hour MBS Alarm, as provided in Paragraph 103.

(IV) Leak Detection Requirements for Pipelines within the Lakehead System

92. *Operation of MBS Leak Detection System*: Enbridge shall continue to operate the MBS Leak Detection System to perform computational modelling for each MBS Segment of each Lakehead System Pipeline. For each MBS Segment, Enbridge shall maintain continuous and uninterrupted leak detection capability at all times, including during periods of Startup and Shutdown, except as set forth in Paragraph 93 below. In no event shall the alarm threshold for Steady State operations be, at any time, less stringent than the minimum alarm thresholds set forth in the table at Subparagraph 91.a.

93. Enbridge may temporarily suspend MBS leak detection operations within any MBS Segment as the result of:

a. Instrumentation in the MBS Segment unexpectedly failing for reasons beyond Enbridge's control;

b. Enbridge taking instrumentation out of service to conduct scheduled maintenance or repairs, or

c. Enbridge taking a flowmeter out of service to move an in-line tool (e.g. ILI tool or In-Line Batch Interface Tool) past the location of the flowmeter, provided that the pipeline is not one that was designed and constructed to allow in-line tools to bypass flowmeters with no disruption in service of the flowmeter.

94. In the event that Enbridge loses or suspends MBS leak detection capability within one or more MBS Segments then, except as provided in Paragraph 95, below, Enbridge shall automatically establish and maintain leak detection capability in an Overlapping MBS Segment as a temporary measure until the leak detection capability is restored in all MBS Segments. The Overlapping MBS Segment shall integrate no more than the minimum number of MBS Segments necessary to achieve and maintain temporary leak detection capability within all MBS Segments impacted by the outage.

95. If Enbridge loses or suspends MBS leak detection capability in (a) the first MBS Segment at the beginning of a Lakehead System Pipeline due to an instrumentation outage at the upstream end of such segment or (b) the last MBS Segment at the end of a Lakehead System Pipeline due to an instrumentation outage at the downstream end of the MBS Segment, Enbridge shall maintain leak detection capability with respect to the non-functioning MBS Segments by means of an alternative leak detection system, which shall be based upon one of the methods

identified in Annex B to API Publication 1130 ("Computational Pipeline Monitoring for Liquid Pipelines"). Enbridge shall continuously operate the alternative leak detection system until the flowmeter outage is resolved and the MBS Segments are restored to operation.

96. Whenever Enbridge loses or suspends leak detection capability within an MBS Segment, Enbridge shall restore the leak detection capability of the MBS Segment as soon as practicable. Enbridge shall report all such outages in the Semi-Annual Report submitted in accordance with Paragraph 143 of this Decree. In the report, Enbridge shall identify (1) the day and hour when the instrumentation outage began, (2) the day and hour when the outage was resolved, (3) the reason for the outage, and (4) the actions taken to resolve the outage.

97. The reporting requirement in Paragraph 96 shall not apply if (a) Enbridge temporarily loses or suspends the leak detection capability for one of the reasons set forth in Paragraph 93 and (b) Enbridge restores the leak detection capability of the MBS Segment within the target periods set forth in the table below.

Reason for Instrumentation Outage	**Time Period to Restore** MBS Segment to Operation
Instrumentation Failure	10 Days
Bypass of ILI Tool	4 hours
Schedule Maintenance or repairs	4 Days

98. In the table above, the 4-hour time period for restoring the MBS segment to operation shall be tolled in the event of an unplanned shutdown of the pipeline during the period when a flowmeter is out of service due to an in-line tool moving past the location of the flowmeter. The tolling period shall begin when the pipeline is shut down, and it shall end when Enbridge resumes pumping operations in the pipeline.

99. *Installation of New Equipment at Remotely-Controlled Valves.* In the event that Enbridge excavates a Remotely-Controlled Valve or converts a manual valve to a Remotely-Controlled Valve on a pipeline within the Lakehead System, Enbridge shall install (i) a pressure transducer/transmitter on the upstream side of the valve as well as on the downstream side of the valve at the time of the excavation and (ii) install a skin-based temperature transducer/transmitter at the valve. Enbridge shall install and operate such equipment in a manner as to provide continuous real-time data to Enbridge's SCADA and MBS Leak Detection System at all times, including during periods when the pipeline is sectionalized.

100. The requirements in Paragraph 99 shall not apply if (1) the remotely-controlled valve is excavated on an emergency basis and not in conjunction with a planned excavation to repair, maintain, or inspect the valve or pipeline or (2) the new equipment would be duplicative of functionally identical equipment in the same Valve Segment.

101. *Transient-State Sensitivity Analysis*. Within 180 Days of the Effective Date, Enbridge shall perform an analysis of all pipelines within the Lakehead System to determine leak sensitivity during Startup and Shutdown conditions and for the purpose of establishing transient-state performance targets.

102. *Rupture Detection System Alarm.* Enbridge shall continuously operate a new Rupture Detection System alarm system, which is integrated with Enbridge's SCADA system and MBS Leak Detection System. The Rupture Detection System Alarm shall apply to all pipelines that are part of the Lakehead System and shall be active at all times, including during periods when the pipeline is in Steady State and Transient State.

a. The Rupture Detection Alarm System shall include a computer-based system that continuously monitors real-time data from the SCADA system for the purpose of

detecting (a) an abnormally low pressure, (b) an abnormal pressure drop, or (c) an abnormal increase in the flow rate.

b. Upon detecting one or more of these abnormal conditions, the computer-based system shall generate an alarm, alerting each member of the Alarm Response Team in accordance with Paragraphs 106 and 107, below.

c. Within 90 Days of the Effective Date, Enbridge shall submit to EPA the results of testing of the Rupture Detection Alarm System for at least two separate MBS Segments. Such testing shall document compliance with this Paragraph and explain why the Rupture Detection Alarm System would alarm in the event of a sudden pressure drop on both sides of a pump station.

d. In the event that such testing does not demonstrate compliance with the requirements of this Paragraph, Enbridge shall, concurrently with submission of the report required under the preceding Subparagraph, submit to EPA for approval a proposed plan and schedule for corrective action. Enbridge shall implement the corrective action in accordance with the approved schedule and conduct re-testing of the alarm system no later than 30 Days after the corrective action is completed.

e. Upon completion of successful testing of the Rupture Detection System, Enbridge shall continuously operate the alarm system at all times, including during periods when the pipeline is in Steady State and Transient State.

103. *"24-hour" Alarm.* Within 270 Days of the Effective Date, Enbridge shall modify the MBS Leak Detection System to include a new "24-hour" alarm, which shall be integrated with Enbridge's SCADA system. The 24-hour Alarm shall apply to all pipelines that are part of the Lakehead System and shall be active at all times, including during periods when the pipeline

is in Steady State and Transient State. To establish such an alarm, Enbridge shall take the following steps:

a. Enbridge shall continuously monitor, track, and model the mass balance of oil for each MBS Segment over any rolling 24-hour period.

b. For all pipelines that are part of the Lakehead System, Enbridge shall ensure that the MBS Leak Detection System, at a minimum, shall alarm if it cannot detect, or otherwise account for, 3 percent (or more) of oil pumped or injected into the MBS Segment over any rolling 24-hour period. The alarm system shall alert each member of the Alarm Response Team of such a condition in accordance with Paragraphs 106 and 107, below.

c. Within one year of establishing the new 24-hour Alarm, Enbridge shall conduct and complete a study to optimize the alarm thresholds for each pipeline that is part of the Lakehead System as of the Effective Date. Within 60 Days of completion of the optimization study, Enbridge shall submit to EPA for review and approval a report setting forth the results of the study and proposing an alarm threshold for each pipeline that optimizes the tradeoff between the competing goals of reducing false alarms and improving the sensitivity of the MBS Leak Detection System in detecting ruptures and leaks. In no event shall Enbridge propose an alarm threshold that would reduce the leak sensitivity of the 24-hour alarm by increasing the alarm threshold above the 3-percent minimum alarm threshold. Upon submission of its proposal, Enbridge shall immediately implement and continuously maintain each proposed alarm threshold as an enforceable requirement of this Consent Decree. In the event that EPA subsequently disapproves one or more of the proposed alarm thresholds, Enbridge shall, within 30 Days of receipt of EPA's disapproval, propose an alternative alarm threshold for each threshold rejected by EPA or invoke dispute resolution under Section XIII of this Consent Decree. In either event,

Enbridge shall continue to maintain the alarm threshold that it initially proposed based upon the optimization study unless and until an alternative alarm threshold is proposed by Enbridge or an alternative alarm is established through dispute resolution.

d. Within one year of Initial Linefill of New US Line 3 or any other New Lakehead Pipeline or Replacement Segment, Enbridge shall conduct and complete an optimization study in accordance with Paragraph 91.b, which shall include optimization of the 24-hour MBS Alarm. Upon submission of the optimization report in accordance with Paragraph 91.c, Enbridge shall immediately implement and continuously maintain the alarm threshold set forth in the report for the 24-hour alarm. In the event that EPA subsequently disapproves the proposed alarm threshold, Enbridge shall, within 30 Days of receipt of EPA's disapproval, propose an alternative alarm threshold or invoke dispute resolution under Section XIII of this Consent Decree. In either event, Enbridge shall continue to maintain the alarm threshold that it initially proposed based upon the optimization study unless and until an alternative alarm threshold is proposed by Enbridge or an alternative alarm is established through dispute resolution.

e. Within 90 Days of optimizing the "24-Hour" alarm for any pipeline that is part of the Lakehead System, Enbridge shall conduct testing of the alarm by conducting simulations of a leak in two separate MBS Segments. Within 60 Days after completing such testing, Enbridge shall report on the results of such testing in a report that is submitted to EPA.

f. In the event that such testing is unsuccessful, Enbridge shall, concurrently with submission of the report referred to in the preceding Subparagraph, submit to EPA for approval a proposed plan and schedule, for corrective action. Upon receipt of an approved plan

for corrective action, Enbridge shall implement the plan in accordance with the approved schedule and conduct re-testing of the alarm.

g. Upon establishment of the optimized threshold for a Lakehead System Pipeline in accordance with Subparagraphs c or d, Enbridge shall continuously comply with the optimized alarm threshold for that pipeline, except as provided below.

(1) Enbridge may relax the optimized alarm threshold for a Lakehead System Pipeline if it experiences false alarms for that pipeline at a rate higher than the rate provided for in the optimization study conducted in accordance with Paragraph 103.c or d.

(2) If the increase in the false alarm rate is due is an equipment failure or a comparable problem that can be corrected through repairs or replacement, Enbridge shall implement such repairs or replacement and restore the optimized alarm threshold as expeditiously as practicable. In the event that the optimized alarm threshold is not restored within 60 Days, Enbridge shall provide a notification to EPA, explaining the actions taken to date and setting forth the plan and the schedule for completing the restoration of the optimized alarm threshold.

(3) If the increase in the false alarm rate is not due to an equipment failure or a comparable problem that can be corrected through repairs or replacement, Enbridge shall undertake a new optimization study. Enbridge shall conduct the new optimization study in accordance with Subparagraph c and d of this Paragraph, except Enbridge shall complete the optimization study and propose a new optimized alarm threshold within six months of the relaxation of the original optimized alarm threshold.

(4) Nothing in this Subpararaph shall authorize Enbridge to establish a temporary alarm threshold or a new optimized alarm threshold that is less sensitive to

leaks and ruptures than the 3% minimum threshold set forth in Subparagraph b of this Paragraph.

(5) In each Semi-Annual Report submitted by Enbridge in accordance with Section IX (Reporting Requirements), Enbridge shall identify each instance when a temporary alarm threshold or new optimized alarm threshold was established and, for each instance, provide (a) the date when the temporary alarm threshold was established, (b) the date when the optimized alarm threshold was restored or replaced with a new optimized alarm threshold, and (c) the reasons why Enbridge concluded that its action were compliant with the requirements of this Subparagraph g.

(V) <u>Leak Detection Requirements for Control Room</u>

104. Applicability*:* For the purposes of this subsection, the term "Alarm" or "Alarms" shall include any and all alarms generated by the MBS Leak Detection System and by the Rupture Detection System.

105. *Alarm Response Team:* Beginning no later than 180 Days after the Effective Date, all Alarms shall be addressed by an Alarm Response Team, which shall be composed of the following individuals in the Control Room at the time that the Alarm occurs: (1) the Control Room operator ("CRO") who is responsible for the pipeline that generates the alarm, (2) the leak detection analyst ("LD Analyst"), and (3) the senior technical advisor for that pipeline.

106. *Remote Notification of Alarm Response Team.* Beginning no later than 180 Days after the Effective Date, Enbridge shall assure that each Alarm triggers a remote notification of each member of the Alarm Response Team who has not electronically acknowledged the Alarm within two minutes after the onset of the Alarm. Such remote notification shall be sent automatically via e-mail, text message or pager. Such notification shall identify the type of alarm

(e.g. 5-minute MBS alarm), the time of its occurrence, and the MBS Segment that precipitated the alarm.

107. *Audible and Visual Alarms:* Beginning no later than 180 Days after the Effective Date, each Alarm shall result in an audible alarm, which shall instantaneously and automatically sound at the desk or workstation ("Pod") of each member of the Alarm Response Team (collectively "Alarm Recipients"). Each audible alarm shall be accompanied by an alarm window, which shall open instantaneously and automatically on the computer displays of the Alarm Recipients. While an Alarm Recipient may elect to mute the audible alarm, Enbridge shall design and implement the alarm systems to ensure that the Alarm Recipient will be unable to turn off, or otherwise hide from view, the alarm window. Enbridge must ensure that the alarm window remains present and visible on the computer display of each Alarm Recipient until the Alarm is cleared in accordance with the "Alarm Clearance Procedure" required below in Paragraph 108. In the event that the Alarm is not cleared within ten minutes of its initiation, Enbridge shall ensure that the audible alarm shall sound again and the alarm window shall change color or provide another visual cue for the purpose of alerting Alarm Recipients that the ten-minute time period for evaluating the Alarm has lapsed.

108. *Alarm Clearance Procedures:* Beginning no later than 180 Days after the Effective Date, Enbridge shall employ the following procedures to clear all Alarms:

a. Each and every Alarm shall remain active until either (1) the pipeline is shut down for the purpose of investigating a potential leak or rupture or (2) the Alarm Response Team completes its investigation of the Alarm and (a) accounts for any cumulative imbalance indicated by the Alarm or series of Alarms, (b) confirms the cause (or causes) of the Alarm and (c) rules out the possibility of a rupture or leak. Under the latter scenario, the Alarm shall

automatically terminate after all members of the Alarm Response Team have manually verified their completion of the steps necessary to investigate and clear the Alarm.

b. No member of the Alarm Response Team shall resolve or clear the Alarm through a manual, one-time adjustment to any alarm system or the inputs into such alarm systems. Such adjustments may be made only after the Alarm Response Team completes its investigation and the Alarm is terminated in accordance with Subparagraph 108.a.

c. In investigating an Alarm, the LD Analyst shall analyze and determine whether the leak detection system that generated the Alarm (i.e. the MBS Leak Detection System or the Rupture Detection System) is functioning properly. Specifically, the LD Analyst shall determine if the Alarm was result of (1) an error in the real-time data from the SCADA system (e.g. data generated by a malfunctioning instrument) or (2) a malfunction of the MBS Leak Detection System or the Rupture Detection System.

d. Irrespective of the determination made by the LD Analyst, the CRO, in conjunction with the senior technical advisor, shall conduct an independent investigation of the Alarm. The final decision to clear the Alarm before 10 minutes have expired, if made, shall be made by the CRO. The CRO shall confer with, and obtain the concurrence of, the senior technical advisor before taking the final action to clear the Alarm in accordance with Subparagraph 108.a.

e. A determination that an Alarm was caused by a Column Separation shall not be a permissible basis for clearing an Alarm unless the Alarm Response Team follows the procedures set forth in Subparagraphs 109.b and 109.c below.

f. Upon clearance of an Alarm and before the end of his or her shift, each member of the Alarm Response Team shall create an electronic record of his or her actions in

response to each Alarm. Each member of the Alarm Response Team shall create such a record by reviewing and selecting categories from an electronic menu on their computer screens, provided that, in any event, the record shall identify (1) the type of alarm, (2) the reasons for clearing the alarm, and (3) the procedures followed by the team member. Each member of the Alarm Response Team shall be responsible for providing the electronic record to his or her counterpart on the subsequent shift. All such electronic records shall be stored and maintained by Enbridge for at least five years, in accordance with Paragraph 157 (record retention).

109. *Unscheduled Shutdown Procedures in Response to an Alarm:* By no later than 50 Days after the Effective Date, Enbridge shall employ the following procedures in shutting down a pipeline in response to an Alarm:

a. *Ten-Minute Rule*: In the event that the Alarm Response Team is unable to rule out the possibility of a leak or rupture within ten minutes of the start of an Alarm, the CRO shall immediately, and without further consultation or notification, shut down and sectionalize the pipeline.

b. *Column Separation - Running Pipeline:* When an Alarm is caused by a Column Separation that forms in a running pipeline, the CRO shall immediately, and without further consultation or notification, shut down and sectionalize the pipeline if, within ten minutes from the start of the Alarm, the Column Separation continues to exist or the Alarm Response Team has not (1) determined the cause of the Column Separation, (2) accounted for cumulative imbalance that triggered the Alarm, and (3) ruled out the possibility of a leak or rupture. The rules stated in this Subparagraph shall not apply when the Alarm is caused by a Column Separation that occurred during or after the shutdown of the pipeline.

c. *Column Separation – Pipeline Shutdown*. When an Alarm is caused by a Column Separation that forms in a pipeline after the commencement of a shutdown, the CRO shall complete the shutdown as expeditiously as possible and sectionalize the pipeline to isolate the Column Separation. In addition, when an Alarm is caused by a Column Separation that formed in a pipeline after the completion of a shutdown, the CRO shall immediately sectionalize the pipeline to isolate the Column Separation. In either event, after sectionalizing the pipeline, the Alarm Response Team shall immediately investigate the Alarm to (1) determine the cause of the Column Selection, (2) account for cumulative imbalance that triggered the Alarm, and (3) attempt to rule out the possibility of a leak or rupture. Such investigation shall be completed as expeditiously as possible. If the Alarm Response Team completes its investigation and clears the Alarm in accordance with Paragraph 108 above, the CRO (or his or her replacement on a subsequent shift) may reopen sectionalizing valves and restart the pipeline, but only after the CRO, in consultation with the senior technical advisor, employs best engineering practices to calculate the amount of time that will be needed to fill the Column Separation and such calculation is reviewed and approved by a manager, as specified in the table below. After the restart of the pipeline, the CRO shall in no event continue pumping operations if the Column Separation is not filled within the time period approved by the manager for restoring the column. If the time period approved by the manager to fill the Column Separation has run and the Column Separation continues to exist, the CRO shall immediately, and without further consultation or notification, shut down and sectionalize the pipe for the purpose of investigating a possible leak or rupture. Such an investigation shall include, among other things, deploying personnel to conduct a visual inspection of the pipeline, contacting local officials to ascertain whether there

have been reports consistent with a leak or rupture, or taking other comparable steps to collect information about the condition of the pipeline.

Estimated Time to Fill Column Separation	Management Approval
10 minutes or less	Shift Supervisor
11 minutes to 30 minutes	On-Call Manager Control Center Operations
More than 30 minutes	VP Pipeline Control or the VP's delegate

d. *Confirmed Leak rule*: In the event that any member of the Alarm Response Team determines that an Alarm is a Confirmed Leak or Rupture, the CRO shall immediately, and without further consultation or notification, shut down and sectionalize the pipeline. A "Confirmed Leak or Rupture" shall mean (a) an Alarm generated by the Rupture Detection System or (b) an Alarm generated by the MBS Leak Detection System combined with two (or more) other operating conditions or events that may indicate a leak or rupture. Such operating conditions or events shall include, but are not limited to, the following examples, unless the Alarm Response Team affirmatively determines the cause of the operating condition or event and such cause is not consistent with a leak or rupture:

(1) Data from the SCADA system shows any of the following conditions or event at a location upstream of the suspected leak or rupture:

- Sudden drop in discharge pressure;
- Sudden change in control valve throttling or pump speed;
- Sudden increase in flow rate; or
- Shut down (or lock out) of one or more pumps in combination with one (or more) of the following conditions or events: a sudden drop in upstream discharge pressure, a sudden change in upstream control valve throttling, or a sudden change in the variable frequency drive ("VFD") control.

(2) Data from the SCADA System shows any of the following conditions or events at a location downstream of the suspected leak or rupture:

- Sudden drop in suction pressure;
- Sudden change in control valve throttling or pump speed;
- Sudden drop in holding pressure at a delivery location;
- Sudden decrease in flow rate; or
- Shut down (or lock out) of Shut down (or lock out) of one or more pumps in combination with one (or more) of the following conditions or events at a location upstream of the suspected leak or rupture: a sudden drop in discharge pressure, a sudden change in control valve throttling, or a sudden change in VFD control.

(3) Data from the SCADA System shows any of the following conditions or events at a terminal where oil is injected into the pipeline with the suspected leak or rupture:

- Sudden increase or decrease in flow rate;
- Sudden decrease in pressure; or
- Shut down (or lock out) of one (or more) booster pumps in combination with a sudden decrease in pressure.

(4) Data from the SCADA System shows any of the following conditions or events at a terminal or landing where oil is delivered from the pipeline with the suspected leak or rupture.

- Sudden increase or decrease in flow rate;
- Sudden decrease in pressure; or
- Closing of a pressure control valve.

e. Once the CRO initiates the Shutdown of a pipeline, Enbridge shall not resume pumping operations until: (i) the cause of the Alarm is determined or the integrity of the pipeline is verified; (ii) the applicable emergency procedures are completed and electronically validated by the appropriate accountable parties; and (iii) a record is generated that details the nature of the Alarm, describes how the cause of the Alarm was determined and/or how the integrity of the line was verified, and records the critical information considered during the decision-making process. After December 31, 2016, Enbridge shall comply with the requirement set forth in this Subparagraph 109.e.(iii) by making an electronic record.

110. *Certification of Compliance with 10-Minute Rule and Other Requirements of this Subsection*: Enbridge shall certify compliance with the 10-Minute Rule and other requirements relating to Alarms under this Subsection VII.G.(V) as follows:

a. Enbridge shall prepare, electronically, a weekly list of alarms ("WLOA") that breaks down, by pipeline and type of Alarm, the total number of Alarms for the week. For each Alarm, the WLOA shall identify the date of the Alarm, the time at which it began, the time when the Alarm was cleared.

b. For each Alarm that met the criteria for an Unscheduled Shutdown set forth in Paragraph 109, Enbridge shall prepare, electronically, a record of alarm ("ROA"), which documents the critical facts relating to the Alarm, including the positions of the Alarm Recipients, the time that the Alarm was received, and the actions (or inactions) of the Alarm Response Team.

(1) In each case where the 10-Minute Rule or other requirements in this Subsection VII.G.(V) required shutdown but shutdown did not occur, Enbridge shall conduct an investigation within 90 Days of the incident and prepare, electronically, a written report ("Post-Incident Report") documenting the pertinent facts and describing the

corrective actions taken as result of the post-incident review. All Post-Incident Reports shall be incorporated by reference, and attached, to the ROA.

(2) In each case where the Alarm Response Team initiated an unscheduled shutdown, as required in Subsection VII.G.(V), the ROA shall state when the Unscheduled Shutdown was commenced, when it was completed, the cause and classification of the Alarm, each fact considered in determining the cause of the Alarm, the justification for resumption of pumping operations, and the time that pumping operations resumed.

c. Enbridge shall provide all WLOAs and ROAs occurring during the reporting time period for all pipelines in the Lakehead System to EPA as an attachment to the Semi-Annual Report in electronic format. In addition, in the body of the Semi-Annual Report, Enbridge shall provide a summary of alarms ("SOA") that sets forth, by pipeline, the total number of alarms and states whether or not Enbridge complied with the 10-Minute Rule and other requirements set forth in Subsection VII.G.(V) in responding to Alarms. With respect to each non-compliance, Enbridge shall explain the reason for the non-compliance and identify the corrective action, if any, taken to prevent a reoccurrence of the non-compliance in its Semi-Annual Report pursuant to Paragraph 143 of the Decree.

d. The Vice-President, Pipeline Control for Enbridge, must sign the SOA and certify that for the relevant reporting period: (1) the information contained in the SOA, as well as in the WLOAs and ROAs, is true and accurate, and (2) Enbridge has complied with the 10-Minute Rule and other requirements of this Subsection VII.G.(V), except for those non-compliances specifically listed in the SOA.

111. *Unscheduled Shutdown Procedures in Response to Other Events:* In the event that Enbridge receives information of a potential leak or rupture from a source other than an Alarm (e.g. police or fire department officials call to report a leak), personnel in the Control Room shall conduct an immediate investigation to determine whether any Lakehead System Pipeline may have failed, resulting in a leak or rupture. Such an investigation shall be completed as expeditiously as possible, but in no event shall the investigation take more than 10 minutes from the moment that Enbridge received information concerning a potential leak or rupture and the approximate location of the potential leak, rupture or discharged oil. In the event that the investigation uncovers evidence consistent with a leak or rupture by a Lakehead System Pipeline, the CRO for the pipeline shall immediately, and without further consultation or notification, shut down and sectionalize the pipeline.

112. In the Semi-Annual Report submitted in accordance with Paragraph 143, Enbridge shall report all incidents during the reporting period when Enbridge received information of a potential leak or rupture from a Lakehead System Pipeline. With respect to each incident, Enbridge shall describe the investigation conducted in response to this information, including (i) the time when Enbridge received notice of a potential leak or rupture, (ii) the information provided with the notice, (iii) the time when Enbridge began its investigation, (iv) the time when Enbridge ended its investigation, and (v) the conclusion and findings of the investigation.

H. SPILL RESPONSE AND PREPAREDNESS

113. Upon confirmation of a pipeline rupture or leak, Enbridge shall immediately proceed, without delay, to take necessary and appropriate actions to minimize and prevent the discharge of oil into, and upon, the waters of the United States or adjoining shorelines. Such

actions shall include, but are not limited, to the immediate dispatch of trained personnel to the location of the rupture or leak.

114. To enhance its ability to respond to any spills that may occur along the Lakehead System, Enbridge shall undertake the actions set forth below in Paragraphs 115 to 119.

115. Agreed Exercises

a. Before Termination of the Consent Decree, Enbridge shall complete four training exercises, in accordance with this Paragraph, to test and practice its response to a major inland oil spill from a Lakehead System Pipeline that impacts a water body ("Agreed Exercises"). Each such Agreed Exercise shall include the mobilization and deployment of Enbridge's local Incident Management Team within a functioning command post. Each Agreed Exercise shall also include deployment of personnel and equipment provided by Enbridge, and one or more of its contractors and oil spill removal organizations ("OSROs"), to a minimum of two identified downstream Control Points. Each Agreed Exercise shall test tactical deployment of personnel and equipment for containment/recovery and techniques for responding to overland flow and impacted banks and vegetation. The activities conducted as part of the Agreed Exercises shall include, but are not limited to: (i) implementation of the Incident Command System ("ICS"), including operation of the unified command structure and (ii) the deployment of equipment, which may include sorbent booms, skimmers, vacuum trucks, and other related equipment applicable to the Control Points, in and along the waterbody that is the focus of the Agreed Exercise.

b. The Agreed Exercises shall occur in the following inland zone locations and times:

(1) Cass, Minnesota (2017)

(2) Des Plaines, Illinois (2018)

(3) Wisconsin River, Wisconsin (2019)

(4) Stockbridge, Michigan, (2020)

c. EPA and Enbridge may modify the location or time by joint written agreement and notice to the Court. Such modifications will not require Court approval.

d. No later than 10 months before each of the four Agreed Exercises, Enbridge shall invite EPA, PHMSA, and the appropriate area committee, Sub-Area committee, tribal representative, state and local authorities to participate in the planning of the Agreed Exercises ("Planning Participants").

e. For each of the four Agreed Exercises Enbridge shall:

(1) Conduct at least three planning meetings, the first of which will take place no later than 10 months before each exercise;

(2) Invite all Planning Participants to each planning meeting;

(3) Coordinate with the Planning Participants during the initial planning meeting to develop the objectives, scenario, and participant list for the Agreed Exercise; and

(4) No later than 9 months before each exercise, submit a draft plan, including the scope, objectives, scenario and participant list for the exercise ("Agreed Exercise Plan") to EPA for review and approval.

f. EPA will review each Agreed Exercise Plan to ensure that specific components – namely, the objectives, scope, impact zone, scenario and invitation list for the exercise – are consistent with the consensus of the participants in the planning process, as well as consistent with (i) the location, schedule, scope and impact zone identified by EPA pursuant to

Subparagraphs 115.a and 115.b of this Consent Decree and (ii) the "National Preparedness for Response Exercise Program (PREP) Guidelines," which are published by the U.S. National Response Team. In accordance with Paragraph 137 of the Consent Decree, EPA will review and approve, approve with modifications, or disapprove with comments the Agreed Exercise Plan within 7 business Days of receipt. In the event that EPA approves the Agreed Exercise Plan but also provides comments, Enbridge shall incorporate those comments into the final Agreed Exercise Plan no later than 60 Days before the Agreed Exercise.

g. Upon receipt of an approved final Agreed Exercise Plan, Enbridge shall conduct the Agreed Exercise in accordance with the approved Agreed Exercise Plan.

h. No later than 30 Days after the completion of each Agreed Exercise, Enbridge shall organize and conduct a meeting to review the Agreed Exercise for the purpose of identifying "lessons learned" and making recommendations to improve future Agreed Exercises and response actions. In planning such a meeting, known for the purposes of this Section as an "After-Action Review," Enbridge shall invite representatives from each Planning Participant.

i. No later than 60 Days after the Agreed Exercise After-Action Review, Enbridge shall submit to EPA for review and comment a report ("After Action Report") that sets forth findings and conclusions regarding the Agreed Exercise. In the event EPA provides comments that are not incorporated into the draft After Action Report to EPA's satisfaction, Enbridge shall include the comment(s) as an appendix to the report. No later than 90 Days after receiving EPA comments, Enbridge shall provide the final report to all Planning Participants electronically.

116. Field Exercises, Table Top Exercises, and Community Outreach

a. Enbridge shall conduct, on an annual basis, until the Consent Decree is terminated, at least six Field Exercises and ten Table-Top Exercises, as described more fully in Subparagraphs 116.b-d below. Enbridge shall conduct such exercises in cities and towns shown on Appendix C.

b. For the purposes of this Paragraph of the Consent Decree, a "Field Exercise" shall mean a training exercise conducted in the field to test and practice specific oil spill emergency response tactics used in the initial hours of an oil spill of at least 1,000 gallons into water. Each Field Exercise shall include (i) a deployment of select equipment and personnel to water, (ii) a review of locations downstream of a spill where containment and recovery operations can occur, (iii) implementation of one or more containment measures set forth in Enbridge's "Inland Spill Response Guide," (iv) implementation of one or more collection measures set forth in the same document, and (v) an After-Action Review conducted at the conclusion of the Field Exercise.

c. For the purpose of this Consent Decree, a "Table-Top Exercise" shall mean an exercise – one that is not conducted in the field – to test and practice oil spill emergency response processes and procedures by using a hypothetical oil spill scenario. Each Table-Top exercise shall include (i) a spill scenario of at least 1,000 gallons from a pipeline in the Lakehead System located in close proximity to water, (ii) notifications of such spill to all of the government entities, including tribal authorities, that are identified in the ICPs, (iii) actions to be taken in the near-term and long-term to address the spill, (iv) the anticipated time periods for personnel and equipment to arrive at the spill site, (v) the risks that such a spill would pose to public health and the environment, and (vi) protective measures to prevent damages or injury to the local community, including evacuation procedures, as identified in the ICPs.

d. For each Field Exercise and Table-Top Exercise, Enbridge shall send invitations to community, state, and local first responders listed in Appendix C, as well as any first responder located within 5 miles of the exercise scenario. In sending such invitations, Enbridge shall (i) provide invitees with notice at least four weeks prior to the exercise, (ii) offer to provide meals to persons who attend each exercise, and (iii) state that training will be provided at no cost to invitees, excluding travel costs. Enbridge shall provide EPA with four weeks' notice of each Field Exercise and Table Top Exercise. EPA may observe or participate in any of the Field or Table Top Exercises.

e. In addition to the above exercises, Enbridge shall conduct or hire a contractor to conduct Community Outreach sessions regarding the hazards of the different oils in the Lakehead System and the location of Enbridge pipelines in the community and how such pipelines are marked. Specifically, within one year of the Effective Date, and for each year thereafter until the Decree is terminated, Enbridge shall hold at least 15 Community Outreach Sessions in 15 different communities where the Lakehead System is located. Enbridge shall also provide information at the Community Outreach sessions regarding: (i) how the community should respond in the event of a spill, (ii) how the community can obtain information in the event of a spill from Enbridge and government agencies, and (iii) how the community can report spills to Enbridge, EPA, and the National Response Center.

117. Control Point Plans

a. Within three years after entry of the Consent Decree, except as provided in Subparagraphs 117.c and 117.d below, Enbridge shall update and maintain information for the Control Point locations set forth in Appendix D that identify containment and recovery points, as well as identify staging locations and other response-related locations, along the waters that could

be impacted by a spill from a pipeline in the Lakehead System. The information for each control point shall include the information in Subparagraph 117.b below, and such information shall be organized in a format that is consistent with the example attached as Appendix E. Enbridge shall use such information to guide initial response actions and to plan and implement the Agreed Exercises and the Field Exercises required under Paragraphs 115 and 116 above.

b. Enbridge shall provide the following for each of its Control Points identified in Appendix D:

(1) *Control Point information* that identifies (a) the name of the water where the Control Point is located, (b) the identification of the pipeline crossing milepost closest to the Control Point, (c) the GPS coordinates of the Control Point, (d) the entry points for vehicles to gain access to the Control Point, (e) the location of the anchor points for boom deployment, (f) the location of boat launches, and (g) any other geographical information pertinent to the preplanned response action;

(2) *A Written Description of the Control Point* that discusses (a) the width of the water during normal and high water conditions, (b) the ability of boats or vessels to operate on the water, including the type and size of boat or vessel, taking into account depth of the water column, bridge clearance, and other obstructions, (c) the velocity of the flow in the water taking into account weather and seasonal changes, and (d) other relevant characteristics of the water. In addition, Enbridge shall maintain and make available for EPA review the name and contact information of each commercial property owner or operator of each land and building where the Control Point is located;

(3) *A Strategic Plan* that describes (a) the strategy that Enbridge plans to use at the Control Point (*e.g.* containment vs. exclusion booming), (b) the type and

quantity of boom and other equipment needed to implement the strategy, (c) the estimated travel time for personnel and equipment to arrive at the Control Point, and (d) other issues that may impact access to, and use of, the Control Point; and

(4) *Photos* that illustrate the information described above.

c. With regard to the Straits of Mackinac area Control Points, no later than one year after the date of entry of this Consent Decree, Enbridge shall revise such Control Point information for the Straits of Mackinac and provide EPA with the updated information identified in Subparagraph 117.b above.

d. Enbridge shall provide the Control Point information required in this Section for each Control Point location that is associated with an Agreed Exercise described above no later than six months prior to the initial planning meeting for the Agreed Exercise, except that Enbridge will not be required to provide this information six months in advance of the first Agreed Exercise described above, but will provide such information no later than 60 Days before the first Agreed Exercise is scheduled to occur..

e. Enbridge shall submit all Control Point information required in this Section to EPA in one of the following electronic formats: (i) .csv with individual IDs for each record and associated photos with linkages to that record, (ii) shape files with individual IDs for each record and associated photos with linkages to that record, (iii) .dbf with individual IDs and latitude and longitude locations for each record and associated photos with linkages to that record, (iv) or other format agreed to, in writing, by EPA and Enbridge. Once EPA has received the updated and revised Control Point Information, EPA may provide this information to the public.

f. Enbridge may submit a notification to EPA that it plans to amend the Control Point locations identified in Appendix D. Enbridge's notification shall identify and

explain the reasons for its change. Enbridge shall include in its Semi-Annual Report: (1) a complete description of any changes to the control point location, (2) the reasons for those changes, and (3) the information required in Subparagraph 117.b for each amended control point in a format that is consistent with Appendix E. If EPA disagrees with any of Enbridge's changes to the control point locations, EPA will notify Enbridge of its disapproval of the changed location. Within 30 Days after any EPA disapproval, Enbridge shall reinstate the original control point location that is identified in Appendix D.

g. In addition to providing EPA with its updated Control Point information, Enbridge will provide the same documents, upon request, to USCG, PHMSA, Sub-Area Committees, state and local responders, and tribal authorities.

118. Review of Response Times for Transport of Personnel and Equipment to Control Points and Other Locations

a. Within three years after the Effective Date, Enbridge shall complete a review, in accordance with this Section, of Enbridge and OSRO personnel and equipment available to respond to an oil spill from the Lakehead System. The scope of Enbridge's review shall, at a minimum, assess whether it and its OSROs can respond and meet all personnel and equipment needs within the timeframes allotted in the maps contained in the Lakehead ICPs.

b. As part of the review required by this Section, Enbridge shall explain the methodology that it has used to estimate driving times set forth in its ICPs. Enbridge shall determine whether any other methodology might yield more accurate information and whether an appropriate additional time cushion is needed for Enbridge and OSRO personnel to reach the response location after accounting for variations in road conditions, weather, and traffic. In assessing response times for OSRO personnel, Enbridge shall review the available methodologies,

including the methodology used to estimate the driving times set forth in its ICP to estimate the amount of time for OSRO personnel to drive from their homes or workplaces and arrive at an OSRO emergency response trailer ("OER Trailer") and then travel from the OER Trailer to the response location, taking into account variations in road conditions, weather, and traffic. The result of any such review shall be revisions, to the extent needed, to ICP response time maps.

c. Within 180 Days after completing each review of the response times contained in the ICP maps, Enbridge shall submit, electronically, to EPA for comment a draft report that discusses Enbridge's findings, and what, if any, actions Enbridge will take based on its findings. Such draft report shall explain the methodologies used by Enbridge in conducting the review, including the methodology it used to estimate the time frames in the ICP maps.

d. Within 90 Days after Enbridge submits the draft report to EPA, in accordance with Subparagraph 118.c, above, EPA may comment on the draft report. In the event that EPA provides comments on the draft report, Enbridge shall consider those comments in finalizing the report. In the event EPA provides comments that are not incorporated into the final report to EPA's satisfaction, Enbridge shall include the comment(s) as an appendix to the final report.

e. Enbridge shall complete the final report within 90 Days of receiving EPA's comments on the draft report or, if Enbridge does not receive any comments from EPA, then no earlier than 180 Days from providing EPA with the draft report, but no later than 240 Days after providing EPA with the draft report. Upon completion of the final report, Enbridge shall provide electronic copies of the report to EPA, as well as to the Sub-Area committees, USCG, PHMSA, and Enbridge's OSROs.

119. Coordination with Governmental Planners

a. After the Effective Date, Enbridge shall attend and participate in all planning meetings that are held by the Buffalo, NY Area Committee and the following Sub-Area Committees: Chicago, Detroit, Duluth/Houghton, NW Indiana, Red River, Sault Ste. Marie, and W. Michigan, provided that Enbridge receives an invitation to the planning meeting at least four weeks in advance of the meeting date. Enbridge may attend and participate in such meetings by teleconference, if available, otherwise Enbridge shall participate in person. Enbridge shall become an active member of at least one sub-committee if it is invited by a Sub-area Committee or the Area Committee identified above.

b. Within one year after the Effective Date, and for each year thereafter, Enbridge shall participate in the following activities organized by each Sub-Area.

(1) *Field Exercise:* Enbridge shall participate in at least one Field Exercise if it is invited by a Sub-Area Committee but has no obligation to attend more than one Field Exercise in each Sub-Area, even if it receives multiple invitations. For the purposes of this provision, the term "Field Exercise" shall have the same meaning that it does in Paragraph 116.b. The Field Exercises required by this Subparagraph are in addition to the Field Exercises that Enbridge must implement pursuant to Paragraph 116 of this Consent Decree.

(2) *Other Training Events:* Enbridge shall participate in at least two other training events if it is invited by a Sub-Area Committee, but has no obligation to attend more than two other training events even if it receives multiple invitations. The training events required by this Subparagraph are in addition to the trainings, exercises and activities required elsewhere in this Consent Decree.

c. In the event that a Sub-Area Committee or Area Committee for the Lakehead System makes written recommendations to Enbridge regarding its emergency preparedness plans and implementation, Enbridge shall respond in writing within 90 Days of receipt of such recommendations and submit an electronic copy of the response to EPA.

d. In the event that Enbridge receives a request to meet and discuss response planning strategies to ensure consistency with the Area Plan, Enbridge shall agree to such a meeting at a mutually convenient time, provided that the request is made by EPA, PHMSA, USCG, tribal representatives, or state or local authorities.

e. Within 2 months after the Effective Date, Enbridge shall provide a redacted electronic copy of the ICPs for the Lakehead System together with a redacted electronic copy of the "Straits of Mackinac Tactical Response Plan," to the Area Committees and the Sub-Area Committees identified in Subparagraph 119.a.

f. Upon request, Enbridge shall provide an unredacted electronic copy of the ICPs for the Lakehead System and/or an unredacted electronic copy of the "Straits of Mackinac Tactical Response Plan," to EPA.

g. Within 30 Days after the Effective Date, Enbridge shall submit to EPA and each of the Sub-Area Committees and the Area Committee identified in Subparagraph 119.a, electronically, for the Lakehead System a map showing the locations of Enbridge's prepositioned emergency response equipment and materials for the Lakehead System. For each location, Enbridge shall also provide the complete inventory of all prepositioned emergency response equipment and materials.

h. As of the Effective Date, Enbridge will coordinate with EPA, and the Area Committee and the Sub-Area Committees identified in Subparagraph 119.a, to identify potential

measures to improve response times in the Lakehead System. Enbridge shall maintain, in good working order, any prepositioned emergency response equipment and materials, and shall replace any such prepositioned emergency response equipment and materials that are expired or used and cannot be reused within 30 calendar days after its expiration or use. In the event that Enbridge makes a modification to the inventory at a prepositioned location by adding or subtracting prepositioned emergency response equipment or materials, or by changing the type of such equipment or materials, Enbridge shall provide electronic written notice of the changes, on an annual basis, to EPA and to each of the Sub-Area Committees and the Area Committee.

i. As of the Effective Date, Enbridge shall maintain on its website, publicly available, copies of its "Inland Spill Response Guide."

j. Upon request, Enbridge shall provide a copy of the "Inland Spill Response Guide" to EPA.

k. All documents that Enbridge is required to provide under this Paragraph 119 must be provided electronically. Enbridge shall provide documents electronically within fourteen business days of any request, unless otherwise stated in the request or as otherwise required by law or regulation. With respect to the map that Enbridge shall provide under this Subparagraph 119.g, Enbridge shall provide the map in one of the following electronic formats: (a) .csv with individual IDs for each record and associated photos with linkages to that record, (b) shape files with individual IDs for each record and associated photos with linkages to that record, (c) .dbf with individual IDs, latitude and longitude for each record and associated photos with linkages to that record, or (d) other format agreed to, in writing, by EPA and Enbridge.

120. Incident Command System Training

a. Prior to being listed as an Incident Commander, Deputy Incident Commander or Alternate Incident Commander of any Enbridge Regional Incident Management Team ("RIMT") in any Lakehead ICP, and before participating in any spill response or exercise as a member of the RIMT, all such personnel shall have completed Incident Command System ("ICS") Level 100B through Level 400 and position-specific training for the position in which they will serve. All other personnel listed as a member of any Enbridge RIMT in any Lakehead ICP shall have completed ICS Level 100B through Level 300 and position-specific training for the position in which they will serve prior to being listed as a member of any Enbridge RIMT in any Lakehead ICP and prior to participating in any spill response or exercise. Prior to being designated as a Regional Emergency Response Coordinator, all such personnel shall have completed ICS Level 100B through 400 training. All emergency management departmental staff shall have completed ICS Level 100B through 300 training within 90 Days after being assigned as emergency management departmental staff. Any person who is designated as Enbridge's Vice President of U.S. Operations, or in an equivalent capacity, shall have completed ICS Level 402 training within 90 Days after such designation. Any other manager or executive who gives direction to field personnel, or is responsible for making funding, personnel, or resource decisions during a spill response, and has not taken ICS Level 100B through 400 training, shall have completed ICS Level 402 training prior to being assigned such responsibilities. All such training must be in accordance with the FEMA recommendations and all training shall be conducted by National Incident Management System ("NIMS") certified instructors. After the Effective Date, Enbridge shall ensure that each ICS role for all four Lakehead Regional Response Zones is filled with a person who has met these training requirements.

b. After the Effective Date, each person assigned to takeover an ICS role , or takeover as an alternate for such a role, shall complete this training prior to beginning such duties. Within 365 Days after the Effective Date, Enbridge shall train at least one Enbridge employee for each Incident Management Team position.

c. The requirements in this Paragraph 120 shall apply to all RIMT personnel, irrespective of whether such personnel are employed directly by Enbridge, by a related entity, or by a third-party contractor and to the managers and executives identified in Subparagraph 120.a, and to at least one group of personnel employed directly by Enbridge who must be trained to serve as a RIMT member. Enbridge shall maintain electronic certification documents to confirm personnel training and make these documents available to EPA upon request. Training records shall include the name, title, RIMT assigned role, and date of each ICS training level for each employee.

I. NEW REMOTELY CONTROLLED VALVES

121. Within the period of the Consent Decree, Enbridge shall install 14 new Remotely Controlled Valves on the Lakehead System for the purpose of minimizing the volume of oil that can be released into the environment in the event of a rupture or leak.

122. Enbridge shall install the 14 new Remotely Controlled Valves on three Lakehead System Pipelines – namely, Line 5, Line 6A, and Line 14. For each pipeline, Enbridge shall install a new valve between each pair of valves shown in the chart below.

Line	**New Valve Reference #**	**New Valve to be Installed Between**	
		Valve at Milepost	**Valve at Milepost**
5	1	1406.45	1422.97
	2	1422.97	1439.71

Line	New Valve Reference #	New Valve to be Installed Between	
		Valve at Milepost	Valve at Milepost
	3	1465.50	1475.63
	4	1479.75	1496.64
	5	1515.11	1532.11
	6	1592.12	1613.93
	7	1613.93	1636.71
	8	1704.74	1721.43
6A	9	70.09	88.18
	10	190.63	201.24
	11	425.95	437.52
	12	456.03	465.39
14	13	419.67	437.76
	14	403.50	417.92

123. In selecting the exact location of each valve, Enbridge shall use computer modeling to assess different locations and estimate the volume of oil that will likely be released from each location in the event of rupture, taking into account elevation, line pressure, and other pertinent factors. In addition, Enbridge should apply dispersion modeling to estimate where oil will likely travel in the event of a rupture. Based upon these analyses, Enbridge shall install each Remotely Controlled Valve at the location that best advances the goals of (1) reducing the volume of oil released from the pipeline in the event of a discharge, (2) protecting waterbodies, wetlands, and other sensitive habitat from oil, and (3) minimizing the impact to environmental resources caused by construction activities to install the Sectionalizing Valve.

124. Enbridge shall design, install, and operate each Remotely Controlled Valve so that valve can be opened or closed remotely by an operator in Enbridge's Control Room. Each valve shall fully close and seal within three minutes of the operator engaging the valve-closure control on his or her control panel.

J. INDEPENDENT THIRD PARTY CONSENT DECREE COMPLIANCE VERIFICATION

125. Enbridge will retain, at its expense, an Independent Third Party to conduct a comprehensive verification of Enbridge's compliance with the requirements set forth in this Section VII (Injunctive Measures) of the Consent Decree, except the Independent Third Party shall not be responsible for assessing Enbridge's compliance with requirements in Subsection VII.H (Spill Response and Preparedness). In addition, the Independent Third Party shall, at Enbridge's expense, perform the tasks set forth in this Section VII.J.

126. The Independent Third Party shall act independently and objectively when performing third-party services set forth in Paragraph 125. Enbridge will provide the Independent Third Party with full access to all facilities that are part of Enbridge's Lakehead System, and provide or otherwise make available any necessary personnel, documents, and databases to fully perform all activities and services required under Paragraph 125.

127. Within 15 Days of the Effective Date, Enbridge shall submit to the United States a list of candidates to serve as Independent Third Party. If practicable, the list shall include at least three candidates, but in no event shall Enbridge propose less than two candidates. Except as set forth in Paragraph 128, Enbridge shall certify that each candidate meets the conditions set forth in Subparagraphs 127.a - e below. If requested, Enbridge shall provide resumes, biographical information, and other relevant material concerning the candidates, including information on the relationship between Enbridge and the candidates.

a. The Independent Third Party and its personnel have demonstrated experience in pipeline integrity and operations, and have the appropriate education to provide the third-party services identified in Paragraph 125;

b. The Independent Third Party and its personnel have not conducted research, development, design, construction, financial, engineering, legal, consulting or any other advisory services for Enbridge within the last three years;

c. The Independent Third Party has not been involved in the development of Enbridge's control room, leak detection or pipeline integrity procedures that are the subject of this Consent Decree;

d. The Independent Third Party will not provide commercial, business or voluntary services to the Enbridge, excluding services provided in its capacity as Independent Third Party, for the life of the Consent Decree and for a period of at least three years following termination of the Consent Decree; and

e. Enbridge will not provide future employment to any of the Independent Third Party's personnel who conducted or otherwise participated in verification services under this Consent Decree for a period of at least three (3) years following termination of the Consent Decree.

128. In the event that Enbridge is not able to certify that a candidate meets all the conditions in Subparagraphs 127.a- e and if Enbridge is unable, after extensive efforts, to identify an alternative candidate that would satisfy such conditions, Enbridge shall submit to the United States: (a) an explanation of its efforts to find an alternative candidate, (b) the name of an alternative candidate that does not completely meet all the independence requirements in Subparagraphs 127.a - e with an explanation of specifically which conditions are not being met and the reasons why they are not being met, and (c) a Conflict of Interest Mitigation Plan for how Enbridge will ensure that such candidate, if selected as the Independent Third Party, would still have sufficient independence to objectively and competently perform the obligations set forth in

this Consent Decree. Cost alone is not a reason to allow a deviation from the conditions in Paragraph 127. The United States will review each alternative candidate proposed by Enbridge to determine whether such candidate is acceptable. If the United States determines the party is not acceptable, the United States may demand that Enbridge identify another candidate, in which event Enbridge shall, within 60 Days of receipt of such demand, either comply with the demand or pursue Dispute Resolution under the terms of this decree.

129. The United States will notify Enbridge in writing whether it approves one or more of the proposed candidates to serve as the Independent Third Party. Within 30 Days of the United States' approval, Enbridge shall retain one of the approved candidates to serve as the Independent Third Party.

130. If the United States rejects all of the candidates proposed by Enbridge to serve as the Independent Third Party, within 60 Days of receipt of the United States' notification, Enbridge shall submit to the United States for approval another list of candidates to serve as the Independent Third Party. In submitting the new list of candidates, Enbridge shall comply with the requirements set forth in Paragraphs 127 and 128. The United States shall review the proposed replacement in accordance with Paragraph 129 and this Paragraph 130.

131. Enbridge shall provide EPA with a copy of Enbridge's agreement with the Independent Third Party within 5 Days of the execution of the agreement. In the agreement, Enbridge shall require the Independent Third Party to perform the tasks set forth in Paragraphs 132 and 133 below. The retention agreement shall also include the requirements set forth in Paragraph 134 below.

132. Enbridge's written agreement with the Independent Third Party shall explicitly require the Independent Third Party to perform all of the tasks assigned to the Independent Third Party in this Consent Decree, including:

a. *Task 1 -- Initial Project Planning Meeting with Region 5 in Chicago.* Within 60 Days of the entry of this Consent Decree by the court, the Independent Third Party shall meet with EPA to provide an overview and detailed project plan of how it plans to perform all of its obligations in this Consent Decree. The Independent Third Party shall bring its key personnel to such meeting, including the lead manager and senior staff involved in implementing its obligations. A representative of Enbridge may attend this meeting.

b. *Task 2 – Review of Plans, Reports, and Other Deliverables*: The Independent Third Party shall review and evaluate all proposed plans, reports, and other deliverables that Enbridge is required to submit under this Consent Decree, except the Independent Third Party shall not review submittals (or portions of submittals) relating to spill response and preparedness. With respect to each submittal that the Independent Third Party is required to review, the Independent Third Party shall evaluate the completeness of the submittal and its compliance with the requirements of the Consent Decree. If requested by EPA, the Third Party shall also prepare and provide EPA with a written report of its evaluation. In the event that the submittal requires action by EPA under Paragraph 137 (Approval of Deliverables), the Independent Third Party shall make a recommendation to EPA as to the action it should take, as well as prepare documentation in support of such recommendation. The Independent Third Party shall complete all of the requirements of this Task within 45 Days of receipt of a request from EPA.

c. *Task 3 – Review of Implementation of Compliance Measures*. The Independent Third Party shall review and evaluate Enbridge's compliance with all requirements set forth in this Section VII of the Consent Decree, except those requirements listed in Subsection VII.H (Spill Response and Preparedness). The Independent Third Party shall complete its initial review within 16 months after the Effective Date of the Consent Decree. Upon request by EPA, it shall conduct further reviews periodically until the Consent Decree is terminated under Section XX (Termination). In conjunction with each review, the Independent Third Party shall prepare a verification report in accordance with Paragraph 133 below. In the event that EPA is unable to determine Enbridge's compliance with the Consent Decree based upon the information that is available to EPA, EPA may request that the Independent Third Party collect and provide additional information for the purpose of enabling EPA to confirm Enbridge's compliance.

d. *Task 4 – Review of Claims of Force Majeure and Other Requests for Extension of Time*: The Independent Third Party shall review all requests or demands by Enbridge for additional time to complete the requirements under Section VII of the Consent Decree, upon request from EPA, although the Independent Third Party shall not review such requests with respect to requirements listed in Subsection VII.H (Spill Response and Preparedness). In the event that Enbridge claims that it is entitled to additional time under Section XII ("Force Majeure"), the Independent Third Party shall, upon request from EPA, review all information provided by Enbridge and make a recommendation to EPA within 72 hours as to whether Enbridge's claim is supported by the underlying facts, technology, business needs, and any constraints beyond the control of Enbridge. Otherwise, the Independent Third Party shall provide a recommendation to EPA, upon request from EPA within ten Days of receipt

of Enbridge's request for additional time. The Independent Third Party shall prepare written documentation in support of its recommendations to EPA within the time frames set forth above in this Task and make such documentation available to EPA upon request.

e. *Task 5 – Requests for Modification of the Consent Decree*: The Independent Third Party shall, upon request from EPA, review all requests by Enbridge for changes to requirements under Section VII of the Consent Decree, unless the proposed changes relate to requirements listed in Subsection VII.H (Spill Response and Preparedness). The Independent Third Party shall provide a recommendation to EPA within 21 Days of receipt of the request of EPA's request for review. The Independent Third Party shall prepare within the same 21-Day period written documentation in support of its recommendations to EPA and make such documentation available to EPA upon request.

133. *Verification Report*:

a. In accordance with the schedule set forth under Subparagraph 132.c, above, the Independent Third Party shall prepare a written report, entitled "Verification Report," that sets forth findings, conclusions and recommendations, if any, as to each of the requirements in this Section VII of the Consent Decree, excluding requirements listed in Subsection VII.H (Spill Response and Preparedness). In preparing the report, the Independent Third Party shall consider the Semi-Annual Reports submitted by Enbridge under Section IX (Reporting Requirements) of the Consent Decree, but the Independent Third Party may consider additional information collected from information requests or visits to Enbridge's facilities. The Verification Report shall list all information considered by the Independent Third Party, all persons interviewed by the Independent Third Party, and summarize any relevant oral communications which occurred

between the Independent Third Party and Enbridge. Upon completion of each Verification Report, the Independent Third Party shall submit the report concurrently to EPA and Enbridge.

b. Within 90 Days of receiving a Verification Report, Enbridge shall submit to EPA a response to all findings, conclusions and recommendations set forth in the Verification Report. To the extent that Enbridge concurs with a finding or conclusion that Enbridge is in non-compliance with the Consent Decree or that it has yet to complete a requirement, Enbridge shall state whether it agrees with the recommended actions for achieving compliance, as well as whether it agrees with the recommended schedule for completing those actions. Alternatively, in the event Enbridge disagrees with any of the Independent Third Party's findings or conclusions, Enbridge shall explain the basis for the disagreement and propose changes to the Verification Report that would address its concern. In either event, to the extent that Enbridge disagrees with any aspect of the Independent Third Party's recommendations for corrective action, Enbridge shall propose its own corrective actions, as well as its own schedule for completing those actions.

c. Within 30 Days of receipt of Enbridge's response, the Independent Third Party shall submit a reply to Enbridge and EPA that addresses each of the issues raised by Enbridge. To the extent that the Independent Third Party concurs with Enbridge's response, the Independent Third Party shall provide EPA and Enbridge with a revised and corrected Verification Report.

d. EPA shall not be bound by the Verification Report as revised and corrected by the Independent Third Party. EPA may accept or reject, in whole or in part, the Independent Third Party's findings, conclusions, and recommendations. If EPA determines that Enbridge is in violation of any requirement subject to stipulated penalties under Section XI (Stipulated Penalties), Enbridge shall be liable for such penalties, regardless of the Verification Report,

unless Enbridge successfully challenges the assessment of stipulated penalties under Section XIII (Dispute Resolution). Likewise, if EPA determines that Enbridge must take certain actions to achieve compliance with the Consent Decree, Enbridge shall perform all such actions, and it shall do so in accordance with the schedule set by EPA, regardless of the Verification Report, unless Enbridge successfully challenges the actions or the schedule under Section XIII (Dispute Resolution).

134. General Requirements: In addition to the tasks set forth in Paragraphs 132 and 133 above, Enbridge's written agreement with the Independent Third Party shall explicitly require the following:

a. The Independent Third Party owes a duty to the United States to provide objective and fair assessment of Enbridge's compliance with the Consent Decree.

b. The Independent Third Party shall provide notice within two Days to Enbridge and the United States in the event that the Independent Third Party is unable to continue to serve as the Independent Third Party under this Consent Decree.

c. Enbridge may terminate the agreement only for good cause shown and with consent of the United States.

d. The Independent Third Party shall provide EPA with an advance schedule of any on-site visits, telephone calls, or other meetings with Enbridge or its agents or contractors and shall invite EPA to participate in person or by teleconference. The Independent Third Party shall simultaneously provide Enbridge with a copy of any such advance schedule.

e. The Independent Third Party must assess whether Enbridge's Semi-Annual Reports and other submittals pursuant to the Consent Decree are supported by the facts and best engineering judgment.

f. The Independent Third Party shall concurrently share any draft or preliminary findings or reports in any format (electronic or paper) with all of the Parties.

g. Prior to hiring a subcontractor to perform any of the tasks identified in Paragraph 132 and 133 above, the Independent Third Party shall: (i) ensure that the subcontractor meets all the conditions and requirements set forth in Paragraph 127, except as provided in Subparagraph 134.h below, (ii) comply with all requests by Enbridge or the United States for resumes, biographical information, and other relevant material concerning the subcontractor, and (iii) seek and obtain approval of the subcontractor by the United States.

h. To the extent the Independent Third Party is unable to identify a subcontractor that meets all the conditions and requirement set forth in Paragraph 127, after extensive efforts to identify such a party, the Independent Third Party shall submit to the United States: (i) an explanation of its efforts to find such a subcontractor, (ii) a proposal for an alternative subcontractor that does not completely meet all the independence requirements in Paragraph 127 with an explanation of specifically which conditions are not being met, and (iii) a Conflict of Interest Mitigation Plan for how the Independent Third Party will ensure that such a subcontractor will still have sufficient independence to objectively and competently perform the obligations set forth in this Consent Decree. Cost alone is not a reason to allow a deviation from the conditions in Paragraph 127. The United States will review the Independent Third Party's proposed alternative subcontractor and will determine whether the proposed subcontractor is acceptable. If the United States determines the proposed subcontractor is not acceptable, then the Independent Third Party shall submit a different party for review and acceptance.

i. The Independent Third Party shall ensure that no personnel and/or subcontractors assigned to provide verification services in connection with the Consent Decree

will seek or obtain employment by Enbridge for the life of the Consent Decree and for at least three years following termination of the Consent Decree.

j. The Independent Third Party and/or its subcontractors shall not provide commercial, business or voluntary services to Enbridge, excluding services provided in its capacity as the Independent Third Party, for a period of at least three years following termination of the Consent Decree.

k. The Independent Third Party shall disclose to the United States any conflicts of interests for it or its subcontractors that may arise with respect to its review and verification of Enbridge's compliance with the Consent Decree. In the event of a conflict, the Independent Third Party shall take any and all action to resolve such conflict.

l. The Independent Third Party and its subcontractors shall annually certify to the United States its compliance with Subparagraphs 134,g - k.

m. The Verification Report, or any information developed or findings or recommendations of the Independent Third Party, shall not be subject to any privilege or protection.

135. Enbridge shall enforce the terms of its written agreement with the Independent Third Party to ensure compliance with this Section VII.J.

136. Independent Third Party Replacement: Within 30 Days of receipt of notice that the Independent Third Party is no longer able to perform the duties set forth in this Subsection VII.J, Enbridge shall propose a replacement Independent Third Party and the United States shall approve or reject the proposed Independent Third Party replacement in accordance with the procedures and requirements set forth in Paragraphs 127 to 130, above. Within 30 Days of the United States' approval of a replacement, Enbridge shall retain the Independent Third Party to

perform the remaining tasks set forth in Paragraphs 132 and 133, above. Enbridge's retention agreement with the Independent Third Party shall also include the requirements set forth in Paragraph 134 and shall comply with this Section VII.J, generally. Within 5 Days of its execution, Enbridge shall provide to EPA a copy of Enbridge's agreement with the replacement Independent Third Party.

VIII. REVIEW AND APPROVAL OF DOCUMENTS

137. Approval of Deliverables. After review of any plan, report, or other item that is required to be submitted for approval pursuant to this Consent Decree, EPA shall in writing: (a) approve the submission, (b) approve the submission upon specified conditions, (c) approve part of the submission and disapprove the remainder, or (d) disapprove the submission.

138. If the submission is approved pursuant to Paragraph 137.(a), Enbridge shall take all actions required by the plan, report, or other document, in accordance with the schedules and requirements of the plan, report, or other document, as approved. If the submission is conditionally approved or approved only in part pursuant to Paragraph 137.(b) or 137.(c), Enbridge shall, upon written direction from EPA, take all actions required by the approved plan, report, or other item that EPA determines are technically severable from any disapproved portions, subject to Enbridge's right to dispute only the specified conditions or the disapproved portions, under Section XIII (Dispute Resolution).

139. If the submission is disapproved in whole or in part pursuant to Paragraph 137.(c) or 137.(d), Enbridge shall, within 45 Days or such other time as the Parties agree to in writing, correct all deficiencies and resubmit the plan, report, or other item, or disapproved portion thereof, for approval, in accordance with the preceding Paragraphs. If the resubmission is approved in whole or in part, Enbridge shall proceed in accordance with the preceding Paragraph.

140. Any stipulated penalties and Interest applicable to the original submission, as provided in Section XI, shall continue to accrue during the forty-five Day period or other specified period, but shall not be payable unless the resubmission is untimely or is disapproved in whole or in part; provided that, if the original submission was so deficient as to constitute a material breach of Enbridge's obligations under this Decree, the stipulated penalties applicable to the original submission shall be due and payable notwithstanding any subsequent resubmission.

141. If a resubmitted plan, report, or other item, or portion thereof, is disapproved in whole or in part, EPA may again require Enbridge to correct any deficiencies, in accordance with the preceding Paragraphs, subject to Enbridge's right to invoke Dispute Resolution and the right of EPA to seek stipulated penalties as provided in the preceding Paragraphs.

142. Permits. Where any compliance obligation under this Consent Decree requires Enbridge to obtain a federal, state, or local permit or approval, Enbridge shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. Enbridge may seek relief under the provisions of Section XII (Force Majeure) for any delay in the performance of any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, if Enbridge has submitted timely and complete applications and has taken all other actions necessary to obtain all such permits or approvals.

IX. REPORTING REQUIREMENTS

143. Defendants shall prepare and submit to EPA, electronically and in writing, on a semi-annual basis, a report documenting Enbridge's compliance with the Consent Decree ("Semi-Annual Report"). The first Semi-Annual Report, which shall be submitted by Enbridge not later than 240 Days after the Effective Date, shall document activities over the first six months after the

Effective Date. Enbridge shall submit the second report, documenting compliance over the next six months, no later than six months after its first report is due. Enbridge shall thereafter continue to submit the Semi-Annual Reports on a rolling six-month basis until termination of the Consent Decree under Section XX (Termination).

144. Enbridge shall include in the Semi-Annual Report all information that is expressly required under Paragraphs 29, 31, 49, 96, and 110.c of the Consent Decree. In addition, Enbridge shall summarize and discuss the status of compliance with respect to all other requirements in Subsections VII.A-J (Injunctive Measures). Specifically, with respect to each requirement, Enbridge shall discuss such matters as completion of milestones, problems encountered or anticipated in implementing the requirement (together with implemented or proposed solutions), status of permit applications, operation and maintenance issues, reports to state agencies, number, by types, of features repaired or mitigated during the reporting period and the number, by type, planned for future repair or mitigation, and any significant changes or issues since the previous Semi-Annual Report.

145. In the event that Enbridge failed to comply with any requirement or deadline under this Consent Decree during the reporting period for the Semi-Annual Report, or if Enbridge anticipates that it will violate a requirement at any time in the future, Enbridge shall identify the likely cause (or causes) of the non-compliance, the facts and circumstance that led (or will lead) to such an event, the remedial steps taken (or to be taken) to rectify the non-compliance, the dates that such steps were taken (or will be taken), the date they complied or will comply with the requirement, and the plan for ensuring that non-compliance is not repeated elsewhere in the future.

146. Each Semi-Annual Report shall identify each discharge from a Lakehead System Pipeline of one or more barrels of oil, as well as any discharge of oil that reaches any waterbody or waters of the United States or adjoining shorelines in a quantity as may be harmful. This portion of the report shall list:

a. Spill date;

b. National Response Center identification number (if applicable);

c. Narrative description of spill location, cause of the spill; spill material, and quantity of spill;

d. Distance spill traveled;

e. Sheen, sludge or emulsion observed;

f. Name of water that spill entered (if applicable);

g. Identification of any water quality standard that was exceeded/violated;

h. Descriptions of actions taken or planned to address spill and prevent future spills and schedule for future actions;

i. Description of any environmental impacts from spill; and

j. The root cause of the spill, provided, however, that if the root cause of the spill is not known at the time a Semi-Annual Report is due, Enbridge shall report the root cause of the spill in the next Semi-Annual Report.

147. Each Semi-Annual Report shall include an update on oil spills reported in previous Semi-Annual Reports, including revisions to volume spills and status of actions taken to address the spill, including actions taken to prevent future spills from similar causes and costs.

148. Each Semi-Annual Report shall include copies of all Post Incident Reports generated during the semi-annual period if not previously provided upon request.

149. Emergency Report: Enbridge shall notify EPA as soon as possible, but no later than 24 hours after Enbridge first knows of any circumstance relating to its performance under the Decree that may pose an immediate threat to public health or welfare or the environment. This procedure is in addition to the other reporting requirements set forth in this Section IX.

150. Enbridge shall submit all reports under this Section IX in accordance with Section XVI (Notices).

151. Whenever Enbridge is required to submit information to EPA pursuant to any section of this Consent Decree except Section VII.H (Spill Response and Preparedness), Enbridge must simultaneously submit the same information to the Independent Third Party.

152. The reporting requirements of this Consent Decree do not relieve Enbridge of any reporting obligations required by the Clean Water Act, the Pipeline Safety Act, the Oil Pollution Act, or their implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

153. Any information provided pursuant to this Consent Decree may be used by the United States in any proceeding to enforce the provisions of this Consent Decree and as otherwise permitted by law.

154. Each report or written notice submitted by Enbridge under this Section (not including an emergency report under Paragraph 149) shall be signed by a corporate official and include the following certification:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on any personal knowledge I may have and my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that

there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

155. Claims of Confidentiality

a. In making any submittal under this Consent Decree, Enbridge may claim that submittal, in whole or in part, contains confidential business information ("CBI") or other information protected by statute. If Enbridge makes such a claim, Enbridge shall: (i) include with the submittal a redacted (or revised) version of the submittal ("Redacted Submittal") that EPA may publicly release, and (ii) provide an explanation of each basis for its assertion that the submittal contains CBI or other protected information.

b. EPA may accept or reject, in whole or in part, Enbridge's claim that a submittal contains CBI or other information protected by statute. To the extent that EPA does not accept Enbridge's claim, EPA may decide that the Redacted Submittal is adequate for public disclosure purposes or, alternatively, may ask Enbridge to consent to certain changes to the Redacted Submittal. In either event, EPA shall not publicly release any portion of the submittal subject to Enbridge's claim of confidentiality unless and until EPA rejects such a claim in accordance with the procedures set forth in its regulations at 40 C.F.R. Part 2. In the event that EPA finds that the report does not contain CBI or other protected information, Enbridge shall have the opportunity to challenge that determination in accordance with EPA's regulations.

X. INFORMATION COLLECTION AND RETENTION

156. The United States and its representatives, including attorneys, contractors, and consultants, shall have the right of entry, upon presentation of credentials, to any part of the Lakehead System for the purpose of:

a. monitoring the progress of activities required under this Consent Decree;

b. verifying any data or information submitted to the United States in accordance with the terms of this Consent Decree;

c. obtaining documentary evidence, including photographs and similar data; and/or

d. assessing Enbridge' compliance with this Consent Decree.

157. Until five years after the termination of this Consent Decree, Enbridge shall retain, and shall instruct its contractors and agents to preserve, all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that relate in any manner to Enbridge's performance or implementation of their obligations under this Consent Decree, including all underlying documents and records from which it has compiled any documents, reports, notices or submissions required by this Consent Decree. This information-retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States, Enbridge shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

158. At the conclusion of the information-retention period provided in the preceding Paragraph, Enbridge shall notify the United States, pursuant to Section XVI (Notices) at least 90 Days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States, Enbridge shall deliver any such documents, records, or other information to the United States. Enbridge may assert that certain documents, records, or other information is privileged under the attorney-client

privilege or any other privilege recognized by federal law. If Enbridge asserts such a privilege, they shall provide the following: (a) the title of the document, record, or information; (b) the date of the document, record, or information; (c) the name and title of each author of the document, record, or information; (d) the name and title of each addressee and recipient; (e) a description of the subject of the document, record, or information; and (f) the privilege asserted by Enbridge. However, no documents, records, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

159. Enbridge may also assert that information required to be provided under this Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any information that Enbridge seeks to protect as CBI, Enbridge shall follow the procedures set forth in 40 C.F.R. Part 2 and Paragraph 155.

160. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States pursuant to applicable federal laws, regulations, or permits, nor does it limit or affect any duty or obligation of Enbridge to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XI. STIPULATED PENALTIES

161. Enbridge shall be liable for stipulated penalties to the United States for violations of this Consent Decree as specified below, unless excused under Section XII (Force Majeure). A violation includes failing to perform any obligation required by the terms of this Decree, including any plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules established by or approved under this Decree.

162. Late Payment of Civil Penalty: If Enbridge fails to pay the civil penalty and Interest required to be paid under Section V (Civil Penalty) when due, Enbridge shall pay a stipulated penalty of $7,500 per Day for each Day that the payment is late.

163. Late Reimbursement of Removal Costs: If Enbridge fails to reimburse the Fund for Past Removal Costs or Future Removal Costs to be reimbursed under Section VI (Payment of Removal Costs) when due, Enbridge shall pay a stipulated penalty of $7,500 per Day for each Day that the reimbursement is late.

164. Violation of Requirements Regarding Injunctive Relief:

a. Enbridge shall pay a stipulated penalty of $10,000 per Day for each Day that Enbridge (1) violates the injunction prohibiting use of Former Line 6B under Subsection VII of the Consent Decree or (2) violates the injunction regarding the use of the Original US Line 3 under Paragraph 22 of the Consent Decree.

b. Enbridge shall pay a stipulated penalty of $20,000 for each incident in which Enbridge (1) violates an unscheduled shutdown procedure set forth in Paragraph 109 of the Consent Decree or (2) fails to report such violations in accordance with Paragraph 110 of the Consent Decree.

c. Enbridge shall pay a stipulated penalty of $15,000 for each incident in which Enbridge violates the requirement in Paragraph 113 for immediate response to a confirmed leak or rupture.

d. For any instance in which Enbridge adopted an Alternate Plan or an alternate interim pressure restriction in violation of Subparagraph 46.e or 46.f, Enbridge shall be subject to daily stipulated penalties under Subparagraph 164.e for each failure to meet applicable requirements or deadlines established in Subsection VII.D.(V).

e. The follow stipulated penalties shall accrue per Day for each violation for failure to comply with all other requirements of Section VII (Injunctive Measures), including provisions in the Appendices:

Penalty Per Violation Per Day	*Period of Noncompliance*
$ 2,000	1st through 14th Day
$ 3,500	15th through 30th Day
$ 5,000	31st Day and beyond

165. Violation of Other Requirements of the Consent Decree: The following stipulated penalties shall accrue per Day for each violation of the requirements of this Consent Decree other than those in Section V (Civil Penalty), Section VI (Payments for Removal Costs), or Section VII (Injunctive Measures).

Penalty Per Violation Per Day	*Period of Noncompliance*
$ 500	1st through 14th Day
$1,000	15th through 30th Day
$2,000	31st Day and beyond

166. Stipulated penalties under this Section shall begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

167. Enbridge shall pay any stipulated penalty within 30 Days of receiving a written demand from the United States. If Enbridge fails to pay stipulated penalties according to the terms of this Consent Decree, Enbridge shall be liable for Interest on such penalties, accruing as of the date payment became due.

168. The United States may in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due it under this Consent Decree.

169. Enbridge shall pay stipulated penalties and any Interest owing to the United States by EFT, in accordance with the instructions to be provided by the FLU of the U.S. Attorney's Office for Western District of Michigan. At the time of payment, Enbridge shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter, to the United States in accordance with Section XVI (Notices) of the Consent Decree, stating that the payment is for the civil penalty owed pursuant to the Consent Decree in this case, and shall reference the Civil Action Number assigned to this case and DOJ Number 90-5-1-1-10099.

170. If Enbridge submits a Notice of Dispute in response to the written demand for payment of the stipulated penalties, Enbridge shall pay all uncontested stipulated penalties within 30 Days after Enbridge's receipt of the bill requiring payment. Simultaneously, Enbridge shall establish, in a duly chartered bank or trust company, an interest-bearing escrow account ("Escrow Account") that is insured by the Federal Deposit Insurance Corporation (FDIC), and remit to that Escrow Account funds equivalent to the amount of the contested stipulated penalties. Enbridge shall send to the United States, as provided in Section XVI (Notices), a copy of the transmittal letter and check paying the uncontested stipulated penalties into the Escrow Account, and a copy of the correspondence that establishes and funds the Escrow Account, including, but not limited to, information containing the identity of the bank and bank account under which the Escrow Account is established as well as a bank statement showing the initial balance of the escrow account. If the United States prevails in the dispute, Enbridge shall pay the sums due (with accrued Interest) to the United States within 7 Days after the resolution of the dispute. If Enbridge prevails concerning any aspect of the contested costs, Enbridge shall pay that portion of the Stipulated Penalties (plus associated accrued Interest) for which they did not prevail to the

United States within 7 Days after the resolution of the dispute. Enbridge shall be disbursed any balance of the escrow account.

171. Enbridge shall not deduct or capitalize stipulated penalties or Interest paid under this Section in calculating its federal income tax.

172. Nothing in this Section shall be construed to limit the United States from seeking any remedy otherwise provided by law for Enbridge's failure to pay any stipulated penalties.

173. Subject to the provisions of Section XIV (Effect of Settlement/Reservation of Rights), the stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States for Enbridge's violation of this Consent Decree or applicable law.

XII. FORCE MAJEURE

174. "Force Majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Enbridge, of any entity controlled by Enbridge, or of Enbridge's contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Enbridge's best efforts to fulfill the obligation. The requirement that Enbridge exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential Force Majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) following its occurrence, such that the delay and any adverse effects of the delay are minimized to the greatest extent possible. "Force Majeure" does not include Enbridge's financial inability to perform any obligation under this Consent Decree.

175. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a Force Majeure event, Enbridge shall provide notice orally or by electronic transmission to EPA, within five Days of when

Enbridge first knew that the event might cause a delay. Within 10 Days thereafter, Enbridge shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Enbridge's rationale for attributing such delay to a Force Majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of Enbridge, such event may cause or contribute to an endangerment to public health, welfare, or the environment. Enbridge shall include with any notice all available documentation supporting the claim that the delay was attributable to a Force Majeure. Failure to comply with the above requirements shall preclude Enbridge from asserting any claim of Force Majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Enbridge shall be deemed to know of any circumstance of which Enbridge, any entity controlled by Enbridge, or Enbridge's contractors knew or should have known.

176. If EPA agrees that the delay or anticipated delay is attributable to a Force Majeure event, the time for performance of the obligations under this Consent Decree that are affected by the Force Majeure event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the Force Majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify Enbridge in writing of the length of the extension, if any, for performance of the obligations affected by the Force Majeure event.

177. If EPA does not agree that the delay or anticipated delay has been or will be caused by a Force Majeure event, EPA will notify Enbridge in writing of its decision.

178. If Enbridge elects to invoke the dispute resolution procedures set forth in Section XIII (Dispute Resolution) in response to EPA's determination in Paragraph 177, it shall do so no later than 30 Days after receipt of EPA's notice. In any such proceeding, Enbridge shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Enbridge complied with the requirements of Paragraphs 174 and 175. If Enbridge carries this burden, the delay at issue shall be deemed not to be a violation by Enbridge of the affected obligation of this Consent Decree identified to EPA and the Court.

XIII. DISPUTE RESOLUTION

179. Except with respect to matters committed to EPA's sole discretion under this Consent Decree, or unless otherwise expressly provided for in this Consent Decree, (a) any dispute arising under this Consent Decree, including but not limited to any dispute as to whether Enbridge is subject to Stipulated Penalties under this Consent Decree shall be subject to this Section XIII (Dispute Resolution), and (b) the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. Enbridge's failure to seek resolution of a dispute under this Section shall preclude Enbridge from raising any such issue as a defense to an action by the United States to enforce any obligation of Enbridge arising under this Decree.

180. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when Enbridge sends the United States a written Notice of Dispute.

Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed 20 Days from the date that the Notice of Dispute is submitted to the United States by Enbridge, unless that period is modified by written agreement of the Parties. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States shall be considered binding unless, within 20 Days after the conclusion of the informal negotiation period, Enbridge invokes formal dispute resolution procedures as set forth below.

181. Formal Dispute Resolution. Enbridge shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by serving on the United States a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting Enbridge's position and any supporting documentation relied upon by Enbridge.

182. The United States shall serve its Statement of Position within 45 Days of receipt of Enbridge's Statement of Position. The United States' Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position shall be binding on Enbridge, unless Enbridge files a motion for judicial review of the dispute in accordance with the following Paragraph.

183. Enbridge may seek judicial review of the dispute by filing with the Court and serving on the United States, in accordance with Section XVI (Notices) of the Consent Decree, a motion requesting judicial resolution of the dispute. The motion must be filed within 30 Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement of Enbridge's position on the matter in dispute, including

any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

184. The United States shall respond to Enbridge's motion within the time period allowed by the Local Rules of this Court. Enbridge may file a reply memorandum, to the extent permitted by the Local Rules.

185. Standard of Review; In any dispute, Enbridge shall bear the burden of demonstrating that its position complies with this Consent Decree and furthers the objectives of the Consent Decree and the CWA.

186. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of Enbridge under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties and Interest with respect to the disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be stayed pending resolution of the dispute. If Enbridge does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XI (Stipulated Penalties).

XIV. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

187. This Consent Decree resolves the civil claims of the United States for injunctive relief and civil penalties for violations of the Clean Water Act alleged in the Complaint, as well as the civil claims of the United States in the Complaint for recovery of removal costs and damages under the Oil Pollution Act with respect to the Line 6A Discharges and the Line 6B Discharges, subject only to any reservations of rights set forth below in this Section. Nothing in this Consent Decree shall be construed to alter or effect the terms of a covenant not to sue in the Consent

Decree in *United States et al. v. Enbridge Energy, Ltd. P'ship, et al.*, Case 1:15-cv-00590-GJQ (W.D. Michigan), relating to claims for natural resource damages relating to the Line 6B discharges.

188. The United States reserves all legal and equitable remedies available to enforce the provision of this Consent Decree, except as expressly stated in Paragraph 187.

189. The United States reserves all legal and equitable remedies with respect to any and all claims other than those described in Paragraph 187. This Consent Decree shall not be construed to limit the rights of the United States to obtain additional relief under any federal law, implementing regulations of federal law, or permit conditions, except as expressly specified in this Consent Decree.

190. Notwithstanding Paragraph 187, the United States reserves the right to assert claims against Enbridge to recover the amount of any third party damage claims that the Oil Spill Liability Trust Fund pays after October 1, 2015.

191. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, civil penalties, response or removal costs, expenses, damages, criminal liability, or other appropriate relief relating to the Lakehead System or Enbridge's violations alleged in the Complaint, including any proceeding related to any Corrective Action Order or Notices of Probable Violations issued by PHMSA, pertaining to the Line 6A Discharges or the Line 6B Discharges, Enbridge shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, *res judicata*, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case, except

with respect to the claims that have been specifically resolved pursuant to Paragraph 187. Enbridge reserves any and all defenses or claims not specifically resolved in this Section XIV.

192. This Consent Decree is not a permit, or a modification of any permit, under any federal, State, or local laws or regulations. Enbridge is responsible for achieving and maintaining compliance with all applicable federal, State, and local laws, regulations, orders, and permits. Enbridge's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, orders, or permits except to the extent provided in this Section XIV. The United States does not, by its consent to the entry of this Consent Decree, warrant or aver in any manner that Enbridge's compliance with any aspect of this Consent Decree will result in compliance with provisions of the CWA, Federal pipeline safety laws, 49 U.S.C. § 60101 et seq., or with any other provision of federal, state, or local laws, regulations, permits, or other requirements, including requirements set forth in the Consent Agreement and Order (CPF No. 3-2012-5017H) with PHMSA, which mandates implementation of the Lakehead Plan.

193. This Consent Decree does not limit or affect the rights of Enbridge or of the United States against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against Enbridge, except as otherwise provided by law, including but not limited to, claims of third parties for damages under the Oil Pollution Act, and claims under 33 U.S.C. § 1365(b)(1)(B) and 42 U.S.C. § 7604(b)(1)(B). This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

194. Enbridge covenants not to sue and agrees not to assert any claims related to the Line 6A Discharges or Line 6B Discharges, or response activities in connection with such discharges, against the United States pursuant to the CWA, Oil Pollution Act, or any other federal

law, state law, or regulation. Enbridge further covenants not to sue and agrees not to assert any direct or indirect claim for reimbursement from the Oil Spill Liability Trust Fund or pursuant to any other provision of law. Finally, Enbridge covenants and agrees not to assert the limitation on liability at 33 U.S.C. § 2704(a)(4) as a defense to any claim or bill presented to Enbridge for payment of removal costs or damages relating to the Line 6A Discharges and Line 6B Discharges.

XV. COSTS

195. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States shall be entitled to collect the costs, including attorneys' fees, incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by Enbridge.

XVI. NOTICES

196. Unless otherwise specified in this Decree, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

As to the United States by email:	eescdcopy.enrd@usdoj.gov Re: DJ # 90-5-1-1-10099
As to the United States by mail:	EES Case Management Unit Environment and Natural Resources Division U.S. Department of Justice P.O. Box 7611 Washington, D.C. 20044-7611 Re: DJ # 90-5-1-1-10099 With copies to the EPA representatives listed below
As to EPA Region 5 by email:	kirby-miles.leslie@epa.gov Riley.ellen@epa.gov Whelan.ann@epa.gov

As to EPA Region 5 by mail:	Leslie A. Kirby-Miles U.S. EPA, Region 5 Office of Regional Counsel (C-14J) 77 W. Jackson Blvd. Chicago, IL 60604
	Ellen Riley U.S. EPA, Region 5 (SC-5J) Superfund Division 77 W. Jackson Blvd. Chicago, IL 60604
	Ann Whelan U.S. EPA, Region 5 (SE-5J) Superfund Division 77 W. Jackson Blvd. Chicago, IL 60604
As to EPA OECA:	Cheryl T. Rose U.S. EPA Office of Enforcement and Compliance Assurance Mail Code 2243-A 1200 Pennsylvania Ave., NW Washington, DC 20460 Email: rose.cheryl@epa.gov
As to USCG:	Director (NPFC) ATTN: Thomas Van Horn Chief, Legal Division CG National Pollution Funds Center U.S. Coast Guard Stop 7605 2703 Martin Luther King Jr Avenue SE Washington, DC 20593-7605 Email: Thomas.H.VanHorn@uscg.mil
As to Enbridge:	Chris Kaitson Vice President-US Law & Deputy General Counsel Enbridge 1100 Louisiana Street, #3300 Houston, TX 77002 E-mail: chris.kaitson@enbridge.com

197. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

198. Notices submitted pursuant to this Section shall be deemed submitted upon mailing or emailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XVII. EFFECTIVE DATE

199. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket; provided, however, that Enbridge hereby agrees that they shall be bound to perform duties scheduled to occur prior to the Effective Date. In the event the United States withdraws or withholds consent to this Consent Decree before entry, or the Court declines to enter the Consent Decree, then the preceding requirement to perform duties scheduled to occur before the Effective Date shall terminate.

XVIII. RETENTION OF JURISDICTION

200. The Court shall retain jurisdiction over this case until termination of this Consent Decree for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections XIII and XIX, or effectuating or enforcing compliance with the terms of this Decree.

XIX. MODIFICATION

201. This Consent Decree, including Appendices, contains the entire agreement of the Parties and shall not be modified by any prior oral or written agreement, representation, or understanding. Prior drafts of this Consent Decree shall not be used in any action involving the interpretation or enforcement of this Consent Decree. The terms of this Consent Decree,

including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties, except as provided herein. Where the modification constitutes a material change to this Decree, it shall be effective only upon approval by the Court. Material changes shall not include agreed-upon changes to deadlines or EPA-approved schedules, provided that the Parties provide notice to the Court of these changes.

202. Any disputes concerning modification of this Decree shall be resolved pursuant to Section XIII (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 185, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XX. TERMINATION

203. Enbridge may serve upon the United States a written Request for Termination and Final Report in accordance with the requirements specified below in this Paragraph after: (i) Enbridge has implemented all requirements of this Consent Decree, (ii) Enbridge has maintained substantial compliance with the requirements of this Consent Decree for at least the last 12 continuous months, and (iii) at least four years have elapsed since the Effective Date. The Request for Termination and Final Report shall include:

a. documentation that Enbridge has paid all civil penalties required under Section V of this Consent Decree, together with any interest due thereon;

b. documentation that Enbridge has paid all stipulated penalties demanded by the United States pursuant to Paragraph 167, above, together with any interest due thereon, except to the extent that such penalties have been successfully contested by Enbridge;

c. documentation that Enbridge has paid all recoverable removal costs and damages (other than natural resource damages) that the United States has incurred and paid with respect to the Line 6B Discharges;

d. documentation, which may incorporate by reference prior Semi-Annual Reports, that Enbridge has implemented all requirements of the Consent Decree. With regard to the ongoing requirements in the Consent Decree, Enbridge must document that all such obligations are current and up-to-date as of the date of the Request for Termination and Final Report and certify that such obligations will continue to be implemented in compliance with the Consent Decree until Termination by the Court;

e. a summary of all instances of noncompliance with any requirement or schedule set forth pursuant to or in this Consent Decree that occurred during the 12-month period prior to submission of the Request for Termination and Final Report, including any such instances that occurred subsequent to the last Semi-Annual Report pursuant to Paragraph 143, and a description of any resolution of each such non-compliance, including any payment of stipulated penalties;

f. a certification that there are no unresolved assertions of Force Majeure under Section XII or Dispute Resolution proceedings under Section XIII, relating to any obligations that Enbridge was required to complete prior to submission of the Request for Termination and Final Report.

204. Following receipt by the United States of Defendants' Request for Termination and Final Report, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether Defendants have satisfactorily complied with the requirements for termination of this Consent Decree. If the United States agrees that the

Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating requirements of the Consent Decree, except as provided in Paragraph 206.

205. If the United States does not agree that the Decree may be terminated, Enbridge may invoke Dispute Resolution under Section XIII. However, Enbridge shall not seek Dispute Resolution of any dispute regarding termination until 120 Days after service of their Request for Termination.

206. Notwithstanding termination of other provisions of the Consent Decree, the restrictions on any resumption of operation of Original US Line 3 or Original Line 6B to transport oil, gas, diluent or any hazardous substance shall remain in effect and enforceable until 10 years after the Effective Date or until Defendant has satisfied the requirements for termination specified above, whichever is later.

XXI. PUBLIC PARTICIPATION

207. This Consent Decree shall be lodged with the Court for a period of not less than 30 Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Enbridge consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has notified Enbridge in writing that it no longer supports entry of the Decree.

XXII. SIGNATORIES/SERVICE

208. Each undersigned representative of Enbridge and the Deputy Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

209. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Enbridge agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons. The Parties agree that Enbridge does not need to file an answer to the complaint in this action unless or until this Court expressly declines to enter this Consent Decree.

XXIII. INTEGRATION

210. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and approved pursuant to this Decree, no other document, or any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

XXIV. FINAL JUDGMENT

211. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States and Enbridge. The Court

finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

XXV. APPENDICES

212. The following Appendices are attached to and part of this Consent Decree:

"Appendix A" lists Priority Features criteria;

"Appendix B" lists input values for Predicted Burst Pressure calculations;

"Appendix C" lists Lakehead System local responders for Field Exercises and Table-Top Exercises;

"Appendix D" lists all Control Point locations covered by the Consent Decree;

"Appendix E" is a sample format for Control Point information; and

"Appendix F" is an illustration of leak detection S-R Performance curves.

Dated and entered this 23 day of May, 2017

/s/ Gordon J. Quist
GORDON J. QUIST
UNITED STATES DISTRICT JUDGE

THE UNDERSIGNED PARTY enters into this Consent Decree regarding claims under the CWA and OPA for injunctive relief, civil penalties, and recovery of removal costs relating to the 2010 Discharges from Enbridge's Line 6A and Line 6B

FOR PLAINTIFF UNITED STATES OF AMERICA:

BRUCE S. GELBER
Deputy Assistant Attorney General
Environment and Natural Resources Division

s/Steven J. Willey (OH 0025361)
STEVEN J. WILLEY
JOSEPH W.C. WARREN
Environmental Enforcement Section
Environment and Natural Resources Division
Department of Justice
P.O. Box 7611
Washington, D.C. 20530
(202) 616-1303

PATRICK A. MILES, JR.
United States Attorney
Western District of Michigan

RYAN COBB
Assistant U.S. Attorney
330 Ionia Avenue, N.W.
Suite 501
Grand Rapids, MI 49503
616-456-2404

THE UNDERSIGNED PARTY enters into this Consent Decree regarding claims under the CWA and OPA for injunctive relief, civil penalties, and recovery of removal costs relating to the 2010 Discharges from Enbridge's Line 6A and Line 6B

FOR PLAINTIFF UNITED STATES OF AMERICA (CONTINUED)

ROBERT A. KAPLAN
Acting Regional Administrator
U.S. EPA, Region 5
Chicago, Illinois

KAREN L. PEACEMAN
LESLIE A. KIRBY-MILES
Associate Regional Counsel
U.S. EPA, Region 5
Chicago, Illinois

THE UNDERSIGNED PARTY enters into this Consent Decree regarding claims under the CWA and OPA for injunctive relief, civil penalties, and recovery of removal costs relating to the 2010 Discharges from Enbridge's Line 6A and Line 6B

FOR PLAINTIFF UNITED STATES OF AMERICA (CONTINUED)

Cynthia Giles

CYNTHIA GILES
Assistant Administrator of Office of Enforcement and Compliance Assurance
U.S. EPA
Washington, D.C.

Cheryl T. Rose

CHERYL ROSE
Attorney Advisor
Office of Enforcement and Compliance Assurance
U.S. EPA
Washington, D.C.

THE UNDERSIGNED PARTY enters into this Consent Decree regarding claims under the CWA and OPA for injunctive relief, civil penalties, and recovery of removal costs relating to the 2010 Discharges from Enbridge's Line 6A and Line 6B

FOR DEFENDANTS:

ENBRIDGE ENERGY, LIMITED PARTNERSHIP,
ENBRIDGE PIPELINES (LAKEHEAD) L.L.C.,
ENBRIDGE ENERGY PARTNERS, L.P.,
ENBRIDGE ENERGY MANAGEMENT, L.L.C.,
ENBRIDGE ENERGY COMPANY, INC., and
ENBRIDGE EMPLOYEE SERVICES, INC.,

CK

Stephen J. Neyland, Vice President

FOR DEFENDANTS:

ENBRIDGE OPERATIONAL SERVICES, INC.,
ENBRIDGE PIPELINES INC., and
ENBRIDGE EMPLOYEE SERVICES CANADA INC.

CK

D. Guy Jarvis, President

THE UNDERSIGNED PARTY enters into this Consent Decree regarding claims under the CWA and OPA for injunctive relief, civil penalties, and recovery of removal costs relating to the 2010 Discharges from Enbridge's Line 6A and Line 6B

FOR DEFENDANTS:

ENBRIDGE ENERGY, LIMITED PARTNERSHIP,
ENBRIDGE PIPELINES (LAKEHEAD) L.L.C.,
ENBRIDGE ENERGY PARTNERS, L.P.,
ENBRIDGE ENERGY MANAGEMENT, L.L.C.,
ENBRIDGE ENERGY COMPANY, INC., and
ENBRIDGE EMPLOYEE SERVICES, INC.,

______________________________ CK
Stephen J. Neyland, Vice President

FOR DEFENDANTS:

ENBRIDGE OPERATIONAL SERVICES, INC.,
ENBRIDGE PIPELINES INC., and
ENBRIDGE EMPLOYEE SERVICES CANADA INC.

______________________________ CK
D. Guy Jarvis, President

APPENDIX A

APPENDIX A

Technology	Priority Notification Criteria
Line Proving & Geometry	1. Dent or Geometric features ≥ 5% OD, or 2. Priority notification criteria specifically identified in the project work order
Corrosion Ultrasonics & Magnetic flux Leakage	1. Metal loss features with peak depth ≥ 75% Nominal Wall Thickness (“NWT”), or 2. Metal loss feature with an effective area RPR ≤ 0.85, or 3. Priority notification criteria specifically identified in the project work order
	4. Metal loss features forecasted to reach maximum depth ≥ 75% NWT or actual wall thickness within 365 calendar days, or 5. Unmatched metal loss features with a depth ≥ 50% NWT or actual wall thickness
Crack Ultrasonics	1. Crack features that meet or exceed the saturation limit of the crack detection tool 2. Crack features ≥ 2.5 mm (0.098 inch), and have been detected on the internal and external pipe surface at the same location 3. Priority notification criteria specifically identified in the project work order

APPENDIX B

Appendix B

Predicted Burst Pressure Calculations

A. <u>Calculation of ILI Burst Pressure</u>

1. Enbridge shall calculate the Predicted Burst Pressure of all Crack features detected by an ILI tools using the CorLAS™ Model.

2. Enbridge shall calculate the Predicted Burst Pressure of all Corrosion features using the following models:

a. Enbridge shall calculate Predicted Burst Pressure using the effective area method ("RSTRENG") or the modified B31G when the Corrosion feature is detected by (i) an ultrasonic wall measurement ("USWM") tool or (ii) a magnetic flux leakage tool that: (A) provides an axial sampling interval no greater than 3 mm and a circumferential sampling interval no greater than 8 mm, and (B) characterizes feature depth with an accuracy of 8% of the wall thickness or better, and

b. Enbridge shall calculate Predicted Burst Pressure using the modified B31G method (i.e. 0.85 x depth of feature x length of feature) when the corrosion feature is detected by any magnetic flux leakage ("MFL") tool that does not meet the requirements specified in 2.a, above.

3. In using each model, Enbridge shall calculate the Predicted Burst Pressure of a feature using the data inputs specified in Paragraphs 4 to 7 below. For those inputs that are not specified below, Enbridge shall use all applicable and appropriate data inputs for achieving accurate and reasonable estimates of the Predicted Burst Pressure of a feature detected by an ILI tool. Such inputs shall include, among other things, all information regarding the Joint where the feature is located, including (but not limited to) pipe grade, pipe diameter, SMYS, ultimate tensile strength, and flow stress.

4. <u>"Wall thickness" Input</u>*:* In selecting an input value for the wall thickness of the Joint with a Crack or Corrosion feature, Enbridge shall apply the following rules:

a. *General Rule*: Enbridge shall select a value for wall thickness equal to the wall thickness of the Joint as measured by a USWM tool. If no USWM data exists, Enbridge shall apply the wall thickness of the Joint as determined by the best available ILI tool for measuring wall thickness.

b. *Exception to General Rule*: The general rule in the preceding subparagraph shall not apply if it yields a wall-thickness value for the Joint that is greater than the specified nominal wall thickness of the Joint. In that circumstance, Enbridge shall select a value for wall thickness equal to the specified nominal wall thickness of the Joint.

c. *Exception to Exception*: If the specified nominal wall thickness of the Joint is more than 15% thinner than the wall thickness as determined in accordance with Subparagraph A.4.a, Enbridge is not required to use the specified nominal wall thickness of the Joint for the purpose of calculating the Predicted Burst Pressure of the feature, provided that

Enbridge documents, in writing, that the specified nominal wall thickness is incorrect and does not reflect the actual wall thickness of the Joint as determined through historical dig information, as-built drawings, or other comparable records relating to the Joint. After making such a written determination, Enbridge may input a value for wall thickness that is equal to either of the following values, whichever yields the thinnest possible wall for the Joint: (i) the wall thickness as determined by historical records or (ii) the wall thickness as determined in accordance with Subparagraph A.4.a.

5. <u>"Depth of feature" Input</u>: In selecting an input value for the depth of a Crack or Corrosion feature detected by an ILI tool, Enbridge shall select a value equal to (a) the depth of the feature as reported by the IIL tool plus (b) an appropriate value representative of the tool tolerance of the ILI tool. If the ILI tool did not report a specific depth for a Crack feature but reported instead a minimum and maximum depth for the feature, Enbridge shall determine the depth of the feature using the following three-step process:

(i) <u>Step One</u>: Enbridge shall input a value for the depth of the Crack feature equal to the maximum depth for the feature reported by the ILI tool.

(ii) <u>Step Two</u>: Enbridge shall calculate the Predicted Burst Pressure of the Crack feature and then compare the value yielded by this calculation to the safe operating pressure determined by 1.25 x MOP. If Predicted Burst Pressure is less than the safe operating pressure for the Joint, Enbridge shall proceed to step 3 below.

(iii) <u>Step Three</u>: For the purpose of assessing the potential severity of the Crack feature, Enbridge shall recalculate the Predicted Burst Pressure of the Crack feature after inputting a new value for the depth of the Crack feature. The new value for the depth of the Crack feature shall be equal to (a) the maximum depth of the feature as reported by the ILI tool plus (b) an appropriate value representative of the maximum variance due to tool tolerance.

6. <u>"Length of Feature" Input</u>: In selecting an input value for the length of a Crack feature or Corrosion feature detected by an ILI tool, Enbridge shall select a value equal to the length of the feature reported by the ILI tool, unless the feature is classified as a "crack field." With respect to crack fields, Enbridge shall select a value representative of the total interacting length of cracks in the field as reported by the ILI tool vendor.

7. <u>"Notch Toughness" Input</u>: In selecting an input value for the "notch toughness" of a Crack feature, Enbridge shall select a value equal to a Charpy V-notch energy of 5 foot/pounds (or an equivalent J integral value) for Crack features located in the long seams of low-frequency electric-resistance welded ("LF-ERW") pipe or flash welded ("FW") pipe. With respect to all other Crack features, Enbridge shall select an input value equal to a Charpy V-notch energy value that is no greater than 15 foot/pounds (or an equivalent J integral value).

B. <u>Calculation of Field Burst Pressure</u>

1. For purposes of Predicted Burst Pressure calculations performed after completing excavation and repair or mitigation of all Potentially Injurious Features identified in any initial

Dig List, Enbridge apply the same procedures set forth above with respect to ILI Burst Pressure Calculations, except Enbridge shall use the inputs in Paragraph 2 and 3 below in lieu of those in Paragraph A.5 and A.6 above:

2. <u>“Depth of feature” Input</u>: In selecting an input value for the depth of a Crack feature or Corrosion feature analyzed in the field, Enbridge shall not select a single value for depth for the feature, but rather should input a number of values equal to the depth measurements collected by field personnel as they measured the feature’s varying depth over its entire length. In the event that the feature is a Crack feature that is located within a Corrosion feature, Enbridge shall ensure that the depth reported by field personnel reflects the combined depth of the features.

3, <u>“Length of feature” Input</u>: In selecting an input or the length of a Crack feature or Corrosion feature analyzed in the field, Enbridge shall select a value equal to the length reported by field personnel using NDE methodologies to measure the feature’s length.

APPENDIX C

APPENDIX C

Company Name	City	State
ADDISON TOWNSHIP FIRE DEPARTMENT	LEONARD	MI
ADDISON TOWNSHIP FIRE DEPARTMENT-STA 2	LEONARD	MI
Algonquin Lake in the Hills Fire Protection Dist S	ALGONQUIN	IL
ARMADA TOWNSHIP FIRE DEPARTMENT EMS	ARMADA	MI
AURORA FIRE DEPARTMENT STATION 12	AURORA	IL
Aurora Fire Department Station 8	AURORA	IL
AURORA FIRE DEPARTMENT STATION 9	AURORA	IL
BARTLETT FIRE PROTECTION DISTRICT STA 1	BARTLETT	IL
BARTLETT FIRE PROTECTION DISTRICT STA 3	BARTLETT	IL
BELVIDERE FIRE DEPARTMENT	BELVIDERE	IL
Belvidere Fire Department Station 2	BELVIDERE	IL
BIG FLATS VOLUNTEER FIRE DEPARTMENT	ARKDALE	WI
BIG ROCK FIRE PROTECTION DISTRICT	BIG ROCK	IL
Boone County Fire Protection District 2 Station 2	GARDEN PRAIRIE	IL
Brandon Fire Department Station 2	OXFORD	MI
BRUCE TOWNSHIP FIRE DEPARTMENT STATION 2	ROMEO	MI
CAMERON TOWNSHIP FIRE DEPARTMENT	MARSHFIELD	WI
Carpentersville Fire Department Station 2	CARPENTERSVILLE	IL
CARY FIRE PROTECTION DISTRICT	CARY	IL
Cary Fire Protection District Station 2	CARY	IL
CHICAGO HEIGHTS FIRE DEPARTMENT	CHICAGO HEIGHTS	IL
Chicago Heights Fire Department Olympia Gardens St	CHICAGO HEIGHTS	IL
Chicago Heights Fire Department Station 1	CHICAGO HEIGHTS	IL
Chicago Heights Fire Department Station 2	CHICAGO HEIGHTS	IL
Chicago Heights Fire Department Station 4	CHICAGO HEIGHTS	IL
Chicago Heights Fire Department Station 5	CHICAGO HEIGHTS	IL
COOLSPRING TOWNSHIP VOL FIRE DEPARTMENT	MICHIGAN CITY	IN
Coolspring Volunteer Fire Department Station 2	MICHIGAN CITY	IN
DARIEN VOLUNTEER FIRE DEPARTMENT	DARIEN	WI
DELAVAN CITY VOLUNTEER FIRE DEPARTMENT	DELAVAN	WI
Delavan Township Fire Department Station 2	DELAVAN	WI
Dyer Fire Department Station 2	DYER	IN
DYER VOLUNTEER FIRE DEPARTMENT	DYER	IN
DYER VOLUNTEER FIRE DEPARTMENT STATION 2	DYER	IN
EAST DUNDEE FIRE DEPARTMENT	EAST DUNDEE	IL
ELGIN FIRE DEPARTMENT STATION 1	ELGIN	IL
ELGIN FIRE DEPARTMENT STATION 2	ELGIN	IL
ELGIN FIRE DEPARTMENT STATION 5	ELGIN	IL
FORT ATKINSON FIRE DEPARTMENT	FORT ATKINSON	WI
FOX RIVER GROVE FIRE PROTECTION DISTRICT	FOX RIVER GROVE	IL
FRANKENLUST VOLUNTEER FIRE DEPARTMENT	BAY CITY	MI
FRANKFORT FIRE PROTECTION DIST STATION 4	FRANKFORT	IL
FRANKFORT FIRE PROTECTION DISTRICT STA 1	FRANKFORT	IL
FRANKFORT FIRE PROTECTION DISTRICT STA 2	FRANKFORT	IL
Gibson Township Fire Department	BENTLEY	MI
GILMAN RURAL VOLUNTEER FIRE DEPARTMENT	GILMAN	WI
Griffith Fire Department Station 2	GRIFFITH	IN
Griffith Fire Department Station 3	GRIFFITH	IN
GRIFFITH VOLUNTEER FIRE DEPARTMENT	GRIFFITH	IN
HAMPSHIRE FIRE PROTECTION DISTRICT	HAMPSHIRE	IL
HOBART AMBULANCE SERVICE	HOBART	IN
Hobart Fire Department Station 4	HOBART	IN

Company Name	City	State
HOLLY FIRE DEPARTMENT	HOLLY	MI
HOMER TOWNSHIP FIRE PROTECTION DISTRICT	LOCKPORT	IL
Homer Township Fire Protection District Station 2	HOMER GLEN	IL
Homer Township Fire Protection District Station 3	LOCKPORT	IL
JOLIET FIRE DEPARTMENT STATION 1	JOLIET	IL
JOLIET FIRE DEPARTMENT STATION 3	JOLIET	IL
JOLIET FIRE DEPARTMENT STATION 6	JOLIET	IL
JOLIET FIRE DEPARTMENT STATION 7	JOLIET	IL
KANEVILLE FIRE PROTECTION DISTRICT	KANEVILLE	IL
KAWKAWLIN TOWNSHIP FIRE DEPARTMENT	KAWKAWLIN	MI
Kirkland Fire Protection District	KIRKLAND	IL
LADYSMITH FIRE DEPARTMENT	LADYSMITH	WI
Lemont Fire Protection District Station 2	LEMONT	IL
LEROY TOWNSHIP FIRE DEPARTMENT	EAST LEROY	MI
Lincoln Fire & Rescue	MARSHFIELD	WI
Lisbon - Seward Fire Protection District 2	YORKVILLE	IL
LITTLE ROCK FOX FIRE DISTRICT STATION 1	PLANO	IL
LITTLE ROCK FOX FIRE DISTRICT STATION 2	MILLBROOK	IL
LITTLE ROCK FOX FIRE DISTRICT STATION 3	PLANO	IL
LOCKPORT TOWNSHIP FIRE PROT DIST STA 1	LOCKPORT	IL
LOCKPORT TOWNSHIP FIRE PROT DIST STA 3	ROMEOVILLE	IL
LUBLIN AREA VOLUNTEER FIRE DEPARTMENT	LUBLIN	WI
LUZERNE VOLUNTEER FIRE DEPARTMENT	LUZERNE	MI
MANHATTAN VOLUNTEER FIRE PROT DISTRICT	MANHATTAN	IL
MARQUETTE COUNTY EMS-OXFORD BRANCH	MONTELLO	WI
MARSEILLES FIRE PROTECTION DISTRICT	MARSEILLES	IL
MARSHALL TOWNSHIP FIRE DEPARTMENT	MARSHALL	MI
MARSHALL VOLUNTEER FIRE DEPARTMENT	MARSHALL	WI
MARYSVILLE FIRE DEPARTMENT	MARYSVILLE	MI
MATTESON FIRE DEPARTMENT	MATTESON	IL
Matteson Fire Department Station 2	MATTESON	IL
MEMPHIS FIRE DEPARTMENT	MEMPHIS	MI
MERRILLVILLE FIRE DEPARTMENT 71	MERRILLVILLE	IN
MERRITT TOWNSHIP FIRE DEPARTMENT	MUNGER	MI
MOKENA FIRE PROTECTION DISTRICT	MOKENA	IL
Mokena Fire Protection District Station 2	MOKENA	IL
NAPERVILLE FIRE DEPARTMENT	NAPERVILLE	IL
Naperville Fire Department Station 10	NAPERVILLE	IL
Naperville Fire Department Station 4	NAPERVILLE	IL
Naperville Fire Department Station 6	NAPERVILLE	IL
NEKOOSA FIRE DEPT-AMBULANCE SERVICE	NEKOOSA	WI
NEW LENOX FIRE PROTECTION DIST STATION 3	NEW LENOX	IL
NEW LENOX FIRE PROTECTION DIST STATION 4	NEW LENOX	IL
NEW LENOX FIRE PROTECTION DISTRICT STA 1	NEW LENOX	IL
NEWTON TOWNSHIP FIRE DEPARTMENT 1ST RESP	CERESCO	MI
Niles Twp Fire Dept	NILES	MI
NILES TWP FIRE DEPT SOUTH- MAIN STATION	NILES	MI
NORTHWEST HOMER FIRE PROTECTION DISTRICT	LOCKPORT	IL
NUNDA RURAL FIRE PROTECTION DISTRICT	CRYSTAL LAKE	IL
OGEMAW FIRE DEPARTMENT STATION 6	WEST BRANCH	MI
Orland Fire Protection District Station 3	ORLAND PARK	IL

Company Name	City	State
Orland Park Fire Protection District	ORLAND PARK	IL
OWEN-WITHEE-CURTISS FIRE ASSOCIATION	OWEN	WI
OXFORD FIRE DEPARTMENT	OXFORD	WI
OXFORD FIRE DEPARTMENT STATION 1	OXFORD	MI
PARDEEVILLE FIRE DEPARTMENT	PARDEEVILLE	WI
PARK FOREST FIRE DEPARTMENT	PARK FOREST	IL
Pinconning Fraser Township Fire Department	LINWOOD	MI
PORT EDWARDS FIRE DEPARTMENT	PORT EDWARDS	WI
Port Huron Fire Department Station 4	PORT HURON	MI
PORTSMOUTH TOWNSHIP FIRE DEPARTMENT	BAY CITY	MI
REESE FIRE RESCUE	REESE	MI
RICHFIELD RURAL FIRE DEPARTMENT	MARSHFIELD	WI
RICHVILLE FIRE DEPARTMENT	RICHVILLE	MI
RIO FIRE DEPARTMENT-AMBULANCE SERVICE	RIO	WI
ROCKDALE FIRE PROTECTION DISTRICT	ROCKDALE	IL
ROME TOWNSHIP FIRE DEPARTMENT	NEKOOSA	WI
ROMEOVILLE VILLAGE FIRE DEPARTMENT STA 1	ROMEOVILLE	IL
SANDWICH COMMUNITY FIRE PROTECTION DIST	SANDWICH	IL
SAUK VILLAGE FIRE DEPARTMENT	SAUK VILLAGE	IL
Schererville Fire Department	SCHERERVILLE	IN
SCHERERVILLE FIRE DEPARTMENT	SCHERERVILLE	IN
Schererville Fire Department	CROWN POINT	IN
SERENA COMMUNITY FIRE PROTECTION DIST	SERENA	IL
SHELDON FIRE PROTECTION DISTRICT	SHELDON	WI
SOUTH KALAMAZOO CNTY FIRE ATHRTY STA 3	VICKSBURG	MI
SPENCER COMMUNITY AMBULANCE SERVICE	SPENCER	WI
SPRINGFIELD TOWNSHIP FIRE DEPT STA 1	DAVISBURG	MI
SPRINGFIELD TOWNSHIP FIRE DEPT STA 2	DAVISBURG	MI
SPRINGPORT-CLARENCE TOWNSHIP FIRE DEPT	SPRINGPORT	MI
STEGER ESTATES VLNTR FIRE PROTECT DIST	CRETE	IL
STEGER FIRE DEPARTMENT-STATION 1	STEGER	IL
STOCKBRIDGE AREA EMERGENCY SVC AUTH-ELM	STOCKBRIDGE	MI
Tinley Park Fire Department Station 3	TINLEY PARK	IL
TROY FIRE PROTECTION DISTRICT STA 1	SHOREWOOD	IL
TROY FIRE PROTECTION DISTRICT STA 2	SHOREWOOD	IL
Troy Township Fire Protection District	SHOREWOOD	IL
VASSAR FIRE AND RESCUE DEPARTMENT	VASSAR	MI
VERONA-KINSMAN FIRE DISTRICT	VERONA	IL
WALWORTH FIRE-RESCUE SQUAD AND AMBULANCE	WALWORTH	WI
Warrenville Fire Department	WARRENVILLE	IL
WARRENVILLE FIRE PROTECTION DISTRICT	WARRENVILLE	IL
WEST CHICAGO FIRE PROTECTION DISTRICT	WEST CHICAGO	IL
West Chicago Fire Protection District Station 2	WEST CHICAGO	IL
West Chicago Fire Protection District Station 3	WEST CHICAGO	IL
WEST DUNDEE FIRE DEPARTMENT STATION 1	WEST DUNDEE	IL
Wonder Lake Fire Protection District Station 16	WONDER LAKE	IL
WATERMAN CMNTY FIRE PROTECTION DISTRICT	WATERMAN	IL
ALLEN TOWNSHIP FIRE PROTECTION DISTRICT	RANSOM	IL
Bay City Fire Department	BAY CITY	MI
Bay City Fire Department	BAY CITY	MI
Bay City Fire Department	BAY CITY	MI

Company Name	City	State
BOLINGBROOK FIRE DEPARTMENT STATION 5	BOLINGBROOK	IL
BP Joliet Works Fire Department	CHANNAHON	IL
CHANNAHON FIRE PROTECTION DISTRICT STA 2	CHANNAHON	IL
CHARTER TOWNSHIP MONITOR FIRE DEPARTMENT	BAY CITY	MI
COAL CITY FIRE PROTECTION DISTRICT	COAL CITY	IL
EAST JOLIET FIRE PROTECTION DISTRICT 3	JOLIET	IL
East Joliet Fire Protection District Station 2	JOLIET	IL
Ford Heights Fire Department	FORD HEIGHTS	IL
FRANKFORT FIRE PROTECTION DIST STATION 5	FRANKFORT	IL
GE PLASTICS FIRE DEPARTMENT	OTTAWA	IL
Genoa - Kingston Fire Department Station 2	KINGSTON	IL
GROVELAND TOWNSHIP FIRE DEPARTMENT STA 1	HOLLY	MI
Hartland Area Fire Department Station 62	FENTON	MI
HEBRON-ALDEN-GREENWOOD FIRE DIST-STA 2	HARVARD	IL
Highland Fire Department South Station	HIGHLAND	IN
HOFFMAN ESTATES FIRE STATION 24	HOFFMAN ESTATES	IL
LAKE HILLS FIRE DEPARTMENT	SCHERERVILLE	IN
LESLIE VOLUNTEER FIRE DEPARTMENT	LESLIE	MI
LISBON-SEWARD FIRE COMPANY 2	NEWARK	IL
LYNWOOD FIRE DEPARTMENT	LYNWOOD	IL
MARSHALL FIRE DEPARTMENT	MARSHALL	MI
MAYVILLE FIRE DEPARTMENT	MAYVILLE	MI
MAZON VOLUNTEER FIRE DEPARTMENT	MAZON	IL
McHenry Township Fire Protection District Station	MCHENRY	IL
MERRILLVILLE EMERGENCY MEDICAL SERVICE	MERRILLVILLE	IN
MOFFATT TOWNSHIP VOLUNTEER FIRE DEPT	ALGER	MI
Newark Fire Protection District Millbrook Station	MILLBROOK	IL
North Boon Fire District 3 Station 2	CALEDONIA	IL
North Boone Fire District 3	POPLAR GROVE	IL
NORTH BRANCH TOWNSHIP FIRE DEPARTMENT	NORTH BRANCH	MI
NORTH OAKLAND COUNTY FIRE AUTHORI STA 3	HOLLY	MI
NORTHWEST HOMER FIRE PROTECTION DISTRICT	LOCKPORT	IL
Northwest Homer Fire Protection District Station 2	HOMER GLEN	IL
Orland Fire Protection District Station 6	ORLAND PARK	IL
PEOTONE FIRE PROTECTION DISTRICT	PEOTONE	IL
PLAINFIELD FIRE PROTECTION DIST STA 1	PLAINFIELD	IL
Plainfield Fire Protection District Station 2	PLAINFIELD	IL
Plainfield Fire Protection District Station 3	PLAINFIELD	IL
RICHTON PARK FIRE DEPARTMENT	RICHTON PARK	IL
Richton Park Fire Department Station 1	RICHTON PARK	IL
Romeoville Fire Department Station 2	ROMEOVILLE	IL
ROSS TOWNSHIP FIRE DEPARTMENT STATION 4	MERRILLVILLE	IN
SAINT CHARLES FIRE DEPARTMENT STATION 2	SAINT CHARLES	IL
SOMONAUK COMMUNTIY FIRE PROTECTION DIST	SOMONAUK	IL
SOUTH CHICAGO HEIGHTS FIRE DEPARTMENT	S CHICAGO HTS	IL
SOUTH HAVEN FIRE DEPARTMENT	VALPARAISO	IN
UNIVERSITY PARK FIRE DEPARTMENT STA 1	UNIVERSITY PARK	IL
WESTFIELD TOWNSHIP FIRE DEPARTMENT	WESTFIELD	WI
WILMINGTON FIRE PROTECTION DISTRICT	WILMINGTON	IL
Windfield Fire Protection District	WINFIELD	IL

PSAP	City	State
DeKalb County Sheriff's Office	Sycamore	IL
La Salle County Sheriff's Office	Ottawa	IL
McHenry County Sheriff's Office	Woodstock	IL
Orland Park ETSB	Orland Park	IL
Sauk Village Police Department	Sauk Village	IL
Southeast Emergency Communications "Seecom"	Woodstock	IL
Tri-Comm Central Dispatch	St. Charles	IL
Highland Police Department	Crown Point	IN
Calhoun County Central Dispatch	Marshall	MI
Kalamazoo Consolidated Dispatch	Kalamazoo	MI
Oxford Police Department	Pontiac	MI
Clark County Sheriff's Office	Neillsville	WI
Dane County Public Safety Communications	Madison	WI
Taylor County Sheriff's Department	Medford	WI
Wood County Dispatch Center	Wisconsin Rapids	WI
Hobart Police Department	Crown Point	IN
Lincolnway Police Dispatch	Joliet	IL
Du-Comm Zone 1	Glendale Heights	IL
Elgin Police Department	Elgin	IL
Joliet Communications	Joliet	IL
Kane County 9-1-1 Center	Geneva	IL
KenCom Public Safety Dispatch	Yorkville	IL
Naperville Police Department	Naperville	IL
Quadcomm 9-1-1	Carpentersville	IL
Romeoville Police Department	Joliet	IL
Southcom Combined Dispatch	Matteson	IL
Griffith Police Department	Crown Point	IN
La Porte County 9-1-1	La Porte	IN
Merrillville Police Department	Crown Point	IN
Porter County 9-1-1	Valparaiso	IN
Schererville Police Department	Crown Point	IN
Bay County Central Dispatch	Bay City	MI
Ingham County Consolidated 9-1-1 Dispatch Center	Lansing	MI
Lapeer County E9-1-1 Central	Lapeer	MI
Livingston County E9-1-1	Howell	MI
Macomb County Sheriff's Office	Mount Clemens	MI
Oakland County Sheriff	Pontiac	MI
Ogemaw County Central Dispatch	West Branch	MI
St Clair County Sheriff's Office	Port Huron	MI
Tuscola County Central Dispatch	Caro	MI
Adams County Sheriff's Office	Friendship	WI
Columbia County Sheriff's Office	Portage	WI
Ft Atkinson Police Department	Fort Atkinson	WI
Marquette County Sheriffs Department	Montello	WI
Rusk County Sheriff's Office	Ladysmith	WI

PSAP	City	State
Walworth County Sheriff's Office	Elkhorn	WI
EastCom Dispatch Center	Joliet	IL
Wescom	Joliet	IL
Will County Sheriff	Joliet	IL
Lake County Sheriff	Crown Point	IN
Bolingbrook Police	Joliet	IL
Chicago Heights Police Department	Chicago Heights	IL
Lynwood-Thornton East Hazel Crest Police Fire Ems	Lynwood	IL
Marseilles Police Department	Marseilles	IL
Village Of Tinley Park Police Department	Tinley Park	IL
Dyer Police Department	Crown Point	IN
Oscoda County Sheriff's Office	Mio	MI
Delavan Police Department	Delavan	WI
Marathon County Sheriff's Office	Wausau	WI
Boone County E9-1-1	Belvidere	IL
Cook County Sheriffs Communications Center	Des Plaines	IL
Grundy County Consolidated 9-1-1 Center	Morris	IL
Southwest Central 9-1-1 System	Palos Heights	IL
Munster Police Department	Crown Point	IN
Arenac County Central Dispatch	Standish	MI
Jackson County Sheriff's Office	Jackson	MI
Crawford Emergency Central Dispatch	Grayling	MI
Saginaw County Central Dispatch	Saginaw	MI
Jefferson County Sheriff's Office	Jefferson	WI
Rock County 911 Communications	Janesville	WI
Chippewa County Sheriff's Office	Chippewa Falls	WI

Company Name	City	State
ASHLAND FIRE DEPARTMENT	ASHLAND	WI
BALDWIN TOWNSHIP VOLUNTEER FIRE DEPT	PERKINS	MI
BESSEMER FIRE DEPARTMENT	BESSEMER	MI
BRAMPTON TOWNSHIP VOLUNTEER FIRE DEPT	GLADSTONE	MI
CARLTON FIRE AND AMBULANCE	CARLTON	MN
CASS LAKE FIRE AND RESCUE DEPARTMENT	CASS LAKE	MN
CITY OF MANISTIQUE AMBULANCE SERVICE	MANISTIQUE	MI
CLEARBROOK VOLUNTEER FIRE DEPARTMENT	CLEARBROOK	MN
CLOQUET AREA FIRE DISTRICT (MERGED WITH PERCH LAKE)	CLOQUET	MN
COHASSET FIRE DEPARTMENT	COHASSET	MN
CRYSTAL FALLS FIRE DEPARTMENT	CRYSTAL FALLS	MI
DEER RIVER FIRE DEPARTMENT	DEER RIVER	MN
GARFIELD TOWNSHIP EMERGENCY SERVICES	ENGADINE	MI
GONVICK FIRE DEPARTMENT	GONVICK	MN
GRAND RAPIDS FIRE DEPARTMENT	GRAND RAPIDS	MN
HIAWATHA TOWNSHIP FIRE DEPARTMENT	MANISTIQUE	MI
INWOOD TOWNSHIP VLNTR FIRE DEPT AND EMS	COOKS	MI
IRONWOOD TOWNSHIP VOLUNTEER FIRE DEPT	IRONWOOD	MI
KIMBALL TOWNSHIP FIRE DEPARTMENT	OSHKOSH	WI
LAKESIDE FIRE DEPARTMENT	POPLAR	WI
Mackinac Island Fire Department	MACKINAC ISLAND	MI
MARENISCO VOLUNTEER FIRE DEPARTMENT	MARENISCO	MI
MASONVILLE TOWNSHIP VOL FIRE DEPARTMENT	RAPID RIVER	MI
Newton Township Fire Department	GOULD CITY	MI
OAKLAND VOLUNTEER FIRE DEPARTMENT	SOUTH RANGE	WI
PARKLAND VOLUNTEER FIRE DEPARTMENT	SOUTH RANGE	WI
SAINT IGNACE FIRE DEPARTMENT	SAINT IGNACE	MI
SAXON-GURNEY FIRE DEPARTMENT	SAXON	WI
SOLON SPRINGS FIRE DEPARTMENT	SOLON SPRINGS	WI
Superior Fire Department Station 3	SUPERIOR	WI
THOMPSON TOWNSHIP FIRE DEPARTMENT	MANISTIQUE	MI
TOPINABEE FIRE DEPARTMENT	TOPINABEE	MI
TUSCARORA TOWNSHIP VOLUNTEER FIRE DEPT	INDIAN RIVER	MI
WAKEFIELD FIRE DEPARTMENT	WAKEFIELD	MI
WATERSMEET TOWNSHIP VOLUNTEER FIRE DEPT	WATERSMEET	MI
Wells Township Volunteer Fire Department	FELCH	MI
WEST BRANCH TOWNSHIP VOL FIRE DEPARTMENT	RALPH	MI
Wrenshall Fire Department	WRENSHALL	MN
WRENSHALL FIRE DEPARTMENT	WRENSHALL	MN
Bemidji Fire Department	BEMIDJI	MN
CARP LAKE TOWNSHIP FIRE DEPARTMENT	CARP LAKE	MI
CHARLTON TOWNSHIP FIRE DEPARTMENT	JOHANNESBURG	MI
FLOODWOOD FIRE DEPARTMENT	FLOODWOOD	MN
GORDON VOLUNTEER FIRE DEPARTMENT	GORDON	WI
Hendricks Township Volunteer Fire Department	NAUBINWAY	MI

Company Name	City	State
Mueller Township Volunteer Fire Department	GULLIVER	MI
Neche Fire Protection District	NECHE	ND
OKLEE VOLUNTEER FIRE DEPARTMENT	OKLEE	MN
PLUMMER FIRE DEPARTMENT	PLUMMER	MN
SAINT HILAIRE FIRE DEPARTMENT	SAINT HILAIRE	MN
U S Forest Service Watersmeet Ranger Station	WATERSMEET	MI
US FOREST SERVICE WATERSMEET RANGER DIST	WATERSMEET	MI
US FOREST SERVICE-ST IGNACE RANGER DIST	SAINT IGNACE	MI
Vienna Township Fire Department	JOHANNESBURG	MI
WARBA-FEELEY-SAGO FIRE DEPARTMENT	WARBA	MN

PSAP	City	State
Beltrami County Law Enforcement Center	Bemidji	MN
Carlton County Sheriff's Office	Carlton	MN
Cass County Sheriff's Office	Walker	MN
Cce Central Dispatch - Charlevoix	Petoskey	MI
Chippewa County Central Dispatch	Kincheloe	MI
Delta County Central Dispatch	Escanaba	MI
Douglas County-City of Superior Dispatch Center	Superior	WI
Iron County 9-1-1	Crystal Falls	MI
Iron County Sheriff's Office	Hurley	WI
Michigan State Police - Negaunee Regional Dispatch	Negaunee	MI
Pennington County Sheriff's Office	Thief River Falls	MN
St Louis County Emergency Communications Department	Duluth	MN
Ashland County 9-1-1 Communications Center	Ashland	WI
Dickinson County Central Dispatch / 911 Center	Iron Mountain	MI
Itasca County Sheriff's Office	Grand Rapids	MN
Marquette County Central Dispatch	Negaunee	MI
Pembina County	Cavalier	ND

APPENDIX D

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Deer Creek	CP 2.20 - 0.10	Mid-Continent	-88.609298	40.96125	4	Line 62,Line 78
Deer Creek	CP 2.20 - 1.64	Mid-Continent	-88.619316	40.946705	4	Line 62,Line 78
Deer Creek	CP 2.20 - 2.90	Mid-Continent	-88.629204	40.935558	4	Line 62,Line 78
Deer Creek	CP 2.20 - 4.04	Mid-Continent	-88.639156	40.931978	4	Line 62,Line 78
Deer Creek	CP3.40 - 1.27	Mid-Continent	-88.605061	40.962549	2	Line 62,Line 78
Deer Creek	CP3.40 - 1.37	Mid-Continent	-88.605469	40.961285	2	Line 62,Line 78
Small (Unnamed) Creek	CP 9.00 - 0.67	Mid-Continent	-88.49331	41.006374	4	Line 62,Line 78
Small (Unnamed) Creek	CP 9.00 - 1.02	Mid-Continent	-88.490058	41.010194	4	Line 62,Line 78
Small (Unnamed) Creek	CP 9.00 - 2.19	Mid-Continent	-88.481907	41.020661	4	Line 62,Line 78
Small (Unnamed) Creek	CP 9.00 - 3.60	Mid-Continent	-88.483459	41.035488	4	Line 62,Line 78
G.B. Creek	CP 11.00 - 0.71	Mid-Continent	-88.460209	41.020985	4	Line 62,Line 78
G.B. Creek	CP 11.00 - 1.87	Mid-Continent	-88.460623	41.035572	4	Line 62,Line 78
G.B. Creek	CP 11.00 - 3.19	Mid-Continent	-88.465879	41.049786	4	Line 62,Line 78
G.B. Creek	CP 11.00 - 3.41	Mid-Continent	-88.462217	41.050039	4	Line 62,Line 78
Unnamed Creek	CP 13.60 - 0.13	Mid-Continent	-88.414242	41.035906	4	Line 62,Line 78
Unnamed Creek	CP 13.60 - 1.45	Mid-Continent	-88.409277	41.050122	4	Line 62,Line 78
Unnamed Creek	CP 13.60 - 2.14	Mid-Continent	-88.400458	41.054723	4	Line 62,Line 78
Unnamed Creek	CP 13.60 - 3.08	Mid-Continent	-88.392194	41.065713	4	Line 62,Line 78
Goose Berry Creek	CP 16.60 - 0.52	Mid-Continent	-88.361817	41.065079	4	Line 62,Line 78
Goose Berry Creek	CP 16.60 - 1.75	Mid-Continent	-88.346784	41.076981	4	Line 62,Line 78
Goose Berry Creek	CP 16.60 - 2.19	Mid-Continent	-88.341156	41.080575	4	Line 62,Line 78
Goose Berry Creek	CP 16.60 - 4.02	Mid-Continent	-88.328684	41.100431	4	Line 62,Line 78
North Goose Berry Creek	CP 19.60 - 0.44	Mid-Continent	-88.30966	41.081455	5	Line 62,Line 78
North Goose Berry Creek	CP 20.60 - 2.26	Mid-Continent	-88.290195	41.112773	5	Line 62,Line 78
North Goose Berry Creek	CP 20.60 - 3.82	Mid-Continent	-88.279573	41.128327	5	Line 62,Line 78
North Goose Berry Creek	CP 20.60 - 4.92	Mid-Continent	-88.279248	41.141837	5	Line 62,Line 78
North Goose Berry Creek	CP 20.60 - 6.67	Mid-Continent	-88.272822	41.157213	5	Line 62,Line 78
East Fork Mazon River	CP 20.60 - 2.26	Mid-Continent	-88.290195	41.112773	4	Line 62,Line 78
East Fork Mazon River	CP 20.60 - 3.82	Mid-Continent	-88.279573	41.128327	4	Line 62,Line 78
East Fork Mazon River	CP 20.60 - 4.92	Mid-Continent	-88.279248	41.141837	4	Line 62,Line 78
East Fork Mazon River	CP 20.60 - 6.67	Mid-Continent	-88.272822	41.157213	4	Line 62,Line 78
Ephemeral Creek	CP 23.10 - 0.56	Mid-Continent	-88.263852	41.114296	4	Line 62,Line 78
Ephemeral Creek	CP 23.10 - 1.66	Mid-Continent	-88.260581	41.126668	4	Line 62,Line 78
Ephemeral Creek	CP 23.10 - 3.22	Mid-Continent	-88.25076	41.142912	4	Line 62,Line 78
Ephemeral Creek	CP 23.10 - 4.52	Mid-Continent	-88.258552	41.157399	4	Line 62,Line 78

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
West Reddick Run	CP 24.10 - 0.90	Mid-Continent	-88.243074	41.129167	4	Line 62,Line 78
West Reddick Run	CP 24.10 - 2.11	Mid-Continent	-88.243085	41.143704	4	Line 62,Line 78
West Reddick Run	CP 24.10 - 3.32	Mid-Continent	-88.249542	41.157637	4	Line 62,Line 78
West Reddick Run	CP 24.10 - 4.10	Mid-Continent	-88.252083	41.168761	4	Line 62,Line 78
East Reddick Run	CP 24.70 - 0.74	Mid-Continent	-88.243074	41.129167	4	Line 62,Line 78
East Reddick Run	CP 24.10 - 2.11	Mid-Continent	-88.243085	41.143704	4	Line 62,Line 78
East Reddick Run	CP 24.10 - 3.32	Mid-Continent	-88.249542	41.157637	4	Line 62,Line 78
East Reddick Run	CP 24.10 - 4.10	Mid-Continent	-88.252083	41.168761	4	Line 62,Line 78
Crane Creek	CP 25.55 - 1.15	Mid-Continent	-88.226342	41.144808	4	Line 62,Line 78
Crane Creek	CP 25.55 - 2.34	Mid-Continent	-88.221999	41.159782	4	Line 62,Line 78
Crane Creek	CP 25.55 - 3.33	Mid-Continent	-88.222813	41.171653	4	Line 62,Line 78
Crane Creek	CP 25.55 - 3.50	Mid-Continent	-88.223495	41.17353	4	Line 62,Line 78
Granary Creek	CP 27.60 - 0.94	Mid-Continent	-88.192063	41.158813	4	Line 62,Line 78
Granary Creek	CP 27.60 - 1.84	Mid-Continent	-88.204521	41.16641	4	Line 62,Line 78
Granary Creek	CP 27.60 - 2.48	Mid-Continent	-88.212734	41.172447	4	Line 62,Line 78
Granary Creek	CP 27.60 - 3.50	Mid-Continent	-88.223495	41.17353	4	Line 62,Line 78
West Horse Creek (FC)	CP 30.40 - 0.58	Mid-Continent	-88.147699	41.176718	4	Line 62,Line 78
West Horse Creek (FC)	CP 31.10 - 2.39	Mid-Continent	-88.150348	41.194734	4	Line 62,Line 78
West Horse Creek (FC)	CP 31.10 - 3.17	Mid-Continent	-88.14398	41.203731	4	Line 62,Line 78
West Horse Creek (FC)	CP 31.10 - 7.05	Mid-Continent	-88.133257	41.246775	4	Line 62,Line 78
West Horse Creek	CP 31.10 - 0.74	Mid-Continent	-88.147699	41.176718	4	Line 62,Line 78
West Horse Creek	CP 31.10 - 2.39	Mid-Continent	-88.150348	41.194734	4	Line 62,Line 78
West Horse Creek	CP 31.10 - 3.17	Mid-Continent	-88.14398	41.203731	4	Line 62,Line 78
West Horse Creek	CP 31.10 - 7.05	Mid-Continent	-88.133257	41.246775	4	Line 62,Line 78
Terry Creek	CP 35.10 - 0.74	Mid-Continent	-88.08487	41.211649	4	Line 62,Line 78
Terry Creek	CP 35.10 - 1.79	Mid-Continent	-88.092628	41.222251	4	Line 62,Line 78
Terry Creek	CP 35.10 - 2.68	Mid-Continent	-88.09783	41.230696	4	Line 62,Line 78
Terry Creek	CP 37.59 - 3.08	Mid-Continent	-88.094195	41.237776	4	Line 62,Line 78
Kankakee River	CP 37.59 - 0.66	Mid-Continent	-88.052272	41.228135	12	Line 62,Line 78
Kankakee River	CP 37.59 - 2.63	Mid-Continent	-88.087926	41.234183	12	Line 62,Line 78
Kankakee River	CP 37.59 - 3.08	Mid-Continent	-88.094195	41.237776	12	Line 62,Line 78
Kankakee River	CP 37.59 - 4.77	Mid-Continent	-88.124379	41.24283	12	Line 62,Line 78
Kankakee River	CP 37.59 - 5.49	Mid-Continent	-88.13284	41.250596	12	Line 62,Line 78
Kankakee River	CP 37.59 - 6.87	Mid-Continent	-88.145401	41.268127	12	Line 62,Line 78
Kankakee River	CP 37.59 - 8.26	Mid-Continent	-88.152977	41.286512	12	Line 62,Line 78

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Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Kankakee River	CP 37.59 - 9.91	Mid-Continent	-88.152264	41.309633	12	Line 62,Line 78
Kankakee River	CP 37.59 - 11.41	Mid-Continent	-88.165235	41.321774	12	Line 62,Line 78
Kankakee River	CP 37.59 - 14.13	Mid-Continent	-88.191106	41.348302	12	Line 62,Line 78
Kankakee River	CP 37.59 - 15.67	Mid-Continent	-88.216979	41.358926	12	Line 6A,Line14,Line 62,Line 78
Kankakee River	CP 37.59 - 18.67	Mid-Continent	-88.260374	41.378504	12	Line 6A,Line14,Line 62,Line 78
Mary Byron Creek	CP 38.33 - 0.15	Mid-Continent	-88.031803	41.230408	4	Line 62,Line 78
Mary Byron Creek	CP 38.33 - 0.67	Mid-Continent	-88.040406	41.234367	4	Line 62,Line 78
Mary Byron Creek	CP 38.33 - 1.32	Mid-Continent	-88.051051	41.238798	4	Line 62,Line 78
Mary Byron Creek	CP 38.33 - 2.43	Mid-Continent	-88.071052	41.241924	4	Line 62,Line 78
Rayns Creek	CP 39.27 - 1.00	Mid-Continent	-88.032153	41.235948	4	Line 62,Line 78
Rayns Creek	CP 39.27 - 1.35	Mid-Continent	-88.051063	41.238827	4	Line 62,Line 78
Rayns Creek	CP 39.27 - 2.45	Mid-Continent	-88.051051	41.238798	4	Line 62,Line 78
Rayns Creek	CP 39.27 - 2.93	Mid-Continent	-88.071052	41.241924	4	Line 62,Line 78
Rayns Creek	CP 40.60 - 1.28	Mid-Continent	-88.012514	41.240369	4	Line 62,Line 78
Rayns Creek	CP 40.60 - 2.54	Mid-Continent	-88.032153	41.235948	4	Line 62,Line 78
Rayns Creek	CP 40.60 - 3.65	Mid-Continent	-88.051063	41.238827	4	Line 62,Line 78
Rayns Creek	CP 40.60 - 5.23	Mid-Continent	-88.051051	41.238798	4	Line 62,Line 78
Unnamed Creek	CP 48.40 - 1.12	Mid-Continent	-87.880961	41.301625	4	Line 62,Line 78
Unnamed Creek	CP 48.40 - 3.16	Mid-Continent	-87.902066	41.27951	4	Line 62,Line 78
Unnamed Creek	CP 48.40 - 4.63	Mid-Continent	-87.920108	41.264603	4	Line 62,Line 78
Unnamed Creek	CP 48.40 - 6.27	Mid-Continent	-87.920108	41.258612	4	Line 62,Line 78
Rock Creek	CP 52.11 - 0.81	Mid-Continent	-87.823467	41.3317	4	Line 62,Line 78
Rock Creek	CP 52.11 - 3.90	Mid-Continent	-87.850642	41.295239	4	Line 62,Line 78
Rock Creek	CP 52.11 - 8.55	Mid-Continent	-87.903156	41.250486	4	Line 62,Line 78
Rock Creek	CP 52.11 - 13.20	Mid-Continent	-87.9692	41.225519	4	Line 62,Line 78
Rock Creek	CP 57.31 - 0.43	Mid-Continent	-87.748114	41.383275	7	Line 78
Rock Creek	CP 57.31 - 2.70	Mid-Continent	-87.777103	41.368703	7	Line 78
Rock Creek	CP 57.31 - 4.85	Mid-Continent	-87.804594	41.349067	7	Line 78
Rock Creek	CP 57.31 - 6.55	Mid-Continent	-87.823467	41.3317	7	Line 62,Line 78
Rock Creek	CP 52.11 - 3.90	Mid-Continent	-87.850642	41.295239	7	Line 62,Line 78
Rock Creek	CP 52.11 - 8.55	Mid-Continent	-87.903156	41.250486	7	Line 62,Line 78
Rock Creek	CP 52.11 - 13.20	Mid-Continent	-87.9692	41.225519	7	Line 62,Line 78
Black Walnut Creek	CP 61.80 - 0.43	Mid-Continent	-87.679837	41.400846	4	Line 78
Black Walnut Creek	CP 61.80 - 2.76	Mid-Continent	-87.708513	41.377677	4	Line 62,Line 78
Black Walnut Creek	CP 61.80 - 6.69	Mid-Continent	-87.746826	41.354555	4	Line 62,Line 78

APPENDIX D

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Black Walnut Creek	CP 61.80 - 12.97	Mid-Continent	-87.801203	41.280197	4	Line 62,Line 78
Bishop Ford DD	CP 70.56 - 0.09	Mid-Continent	-87.583285	41.470169	4	Line 78
Bishop Ford DD	CP 70.56 - 0.88	Mid-Continent	-87.58593	41.479855	4	Line 78
Bishop Ford DD	CP 70.56 - 2.31	Mid-Continent	-87.578388	41.499412	4	Line 6A,Line 64,Line 78
Bishop Ford DD	CP 70.56 - 4.22	Mid-Continent	-87.589973	41.520903	4	Line 6A,Line 64,Line 78
Bishop Ford DD	CP 71.24 - 0.09	Chicago Region	-87.585861	41.479837	4	Line 78
Bishop Ford DD	CP 71.24 - 0.60	Chicago Region	-87.582537	41.486524	4	Line 78
Bishop Ford DD	CP 71.24 - 1.63	Chicago Region	-87.579274	41.499438	4	Line 6A,Line 64,Line 78
Bishop Ford DD	CP 71.24 - 2.73	Chicago Region	-87.582517	41.513543	4	Line 6A,Line 64,Line 78
Bishop Ford DD	CP 71.56 - 0.26	Chicago Region	-87.582628	41.486466	4	Line 78
Bishop Ford DD	CP 71.56 - 1.25	Chicago Region	-87.578305	41.499355	4	Line 6A,Line 64,Line 78
Bishop Ford DD	CP 71.56 - 2.33	Chicago Region	-87.582517	41.513543	4	Line 6A,Line 64,Line 78
Bishop Ford DD	CP 71.56 - 5.33	Chicago Region	-87.625237	41.547379	4	Line 6A,Line 64,Line 78
Deer Creek	CP 72.87 - 0.64	Chicago Region	-87.582194	41.506582	4	Line 6A,Line 64,Line 78
Deer Creek	CP 72.87 - 1.89	Chicago Region	-87.590086	41.520726	4	Line 6A,Line 64,Line 78
Deer Creek	CP 72.87 - 5.33	Chicago Region	-87.62523	41.547441	4	Line 6A,Line 64,Line 78
Deer Creek	CP 72.87 - 8.48	Chicago Region	-87.608602	41.567182	4	Line 6A,Line 64,Line 78
North Creek	CP 74.71 - 0.73	Chicago Region	-87.531833	41.503604	4	Line 6A,Line 64,Line 78
North Creek	CP 74.71 - 2.23	Chicago Region	-87.529424	41.524684	4	Line 6A,Line 64,Line 78
North Creek	CP 74.71 - 4.01	Chicago Region	-87.539371	41.543434	4	Line 6A,Line 64,Line 78
North Creek	CP 74.71 - 4.76	Chicago Region	-87.540563	41.553783	4	Line 6A,Line 64,Line 78
Plum Creek	CP 76.10 - 0.06	Chicago Region	-87.5162	41.499583	5	Line 6A,Line 64,Line 78
Plum Creek	CP 76.10 - 0.86	Chicago Region	-87.509595	41.509078	5	Line 6A,Line 64,Line 78
Plum Creek	CP 76.10 - 1.59	Chicago Region	-87.503923	41.518233	5	Line 6A,Line 64,Line 78
Plum Creek	CP 76.10 - 2.30	Chicago Region	-87.492986	41.535679	5	Line 6A,Line 64,Line 78
Plum Creek	CP 76.80 - 4.15	Chicago Region	-87.481725	41.551864	5	Line 6A,Line 64,Line 78
Deer Creek	CP 76.80 - 0.43	Chicago Region	-87.503967	41.518233	4	Line 6A,Line 64,Line 78
Deer Creek	CP 76.80 - 1.23	Chicago Region	-87.503967	41.518233	4	Line 6A,Line 64,Line 78
Deer Creek	CP 76.80 - 2.27	Chicago Region	-87.498122	41.527581	4	Line 6A,Line 64,Line 78
Deer Creek	CP 76.80 - 4.15	Chicago Region	-87.481725	41.551864	4	Line 6A,Line 64,Line 78
Spring Creek	CP 79.07 - 0.13	Chicago Region	-87.463159	41.511608	4	Line 6A,Line 64,Line 78
Spring Creek	CP 79.07 - 0.38	Chicago Region	-87.462674	41.515068	4	Line 6A,Line 64,Line 78
Spring Creek	CP 79.07 - 1.38	Chicago Region	-87.466689	41.529036	4	Line 6A,Line 64,Line 78
Spring Creek	CP 79.07 - 2.22	Chicago Region	-87.46947	41.540765	4	Line 6A,Line 64,Line 78
Oak Street Pond	CP 79.67 - 0.01	Chicago Region	-87.452295	41.514267	1	Line 6A,Line 64,Line 78

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Amnicon River	CP1107-0.1B	Superior	-91.89786932	46.654603	4	Line 5
Amnicon River	CP1107-0.4W	Superior	-91.89892949	46.658083	4	Line 5
Amnicon River	CP1107-4.3E	Superior	-91.86387906	46.685852	4	Line 5
Amnicon River	CP1107-5.0E	Superior	-91.85747736	46.691492	4	Line 5
Bad River	CP1165-10.5W	Superior	-90.70259143	46.60847	7	Line 5
Bad River	CP1165-11.2N	Superior	-90.68889261	46.606855	7	Line 5
Bad River	CP1165-11.6E	Superior	-90.68599983	46.608234	7	Line 5
Bad River	CP1165-11.8E	Superior	-90.682293	46.610824	7	Line 5
Bad River	CP1165-15.5S	Superior	-90.65170238	46.637791	7	Line 5
Bad River	CP1165-4.7W	Superior	-90.68853863	46.566867	7	Line 5
Bad River	CP1165-9.4E	Superior	-90.68875209	46.599295	7	Line 5
Ball Club River	CP989-11.9W	Superior	-93.80520349	47.251238	6	Line 1,Line 2B,Line 3,Line4,Line67
Ball Club River	CP989-14.0W	Superior	-93.80218542	47.22488	6	Line 1,Line 2B,Line 3,Line4,Line67
Ball Club River	CP989-18.2E	Superior	-93.76083877	47.225386	6	Line 1,Line 2B,Line 3,Line4,Line67
Ball Club River	CP989-18.5B	Superior	-93.75804769	47.229131	6	Line 1,Line 2B,Line 3,Line4,Line67
Ball Club River	CP989-27.4N	Superior	-93.62331187	47.262732	6	Line 1,Line 2B,Line 3,Line4,Line67
Ball Club River	CP989-8.0E	Superior	-93.7815815	47.289422	6	Line 1,Line 2B,Line 3,Line4,Line67
Bass Brook	CP1004-0.9N	Superior	-93.62424368	47.262771	3	Line 1,Line 2B,Line 3,Line4,Line67
Bass Brook	CP1004-3.4B	Superior	-93.58723235	47.251317	3	Line 1,Line 2B,Line 3,Line4,Line67
Bass Brook	CP1104-0.7W	Superior	-93.61782406	47.262622	3	Line 1,Line 2B,Line 3,Line4,Line67
Bay City Creek	CP1157-1.0B	Superior	-90.87696345	46.567021	4	Line 5
Bay City Creek	CP1157-3.7B	Superior	-90.87057604	46.592109	4	Line 5
Bay City Creek	CP1157-5.0B	Superior	-90.87303928	46.599507	4	Line 5
Bay City Creek	CP1157-5.4W	Superior	-90.88260262	46.596686	4	Line 5
Bear Brook Creek Tributary	CP981-0.2W	Superior	-94.06625387	47.33055	2	Line 1,Line 2B,Line 3,Line4,Line67
Bear Brook Creek Tributary	CP981-0.6N	Superior	-94.073708	47.327566	2	Line 1,Line 2B,Line 3,Line4,Line67
Bear Creek	CP1102-0.2W	Superior	-92.00852229	46.670628	6	Line 5
Bear Creek	CP1102-0.4B	Superior	-92.00558161	46.672414	6	Line 5
Bear Creek	CP1102-0.5E	Superior	-92.00428206	46.673559	6	Line 5
Bear Creek	CP1102-2.2N	Superior	-91.98796006	46.691744	6	Line 5
Bear Creek	CP1102-2.5W	Superior	-92.01354246	46.687109	6	Line 5
Bear Creek	CP1102-2.8W	Superior	-92.01303041	46.697411	6	Line 5
Beartrap Creek	CP1160-10.4N	Superior	-90.7329334	46.619641	4	Line 5
Beartrap Creek	CP1160-18.0W	Superior	-90.77982377	46.630726	4	Line 5
Beartrap Creek	CP1160-3.6B	Superior	-90.79654313	46.582861	4	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Beartrap Creek	CP1160-7.9B	Superior	-90.76038234	46.609291	4	Line 5
Big Lake	CP1066-1.0W	Superior	-92.64059638	46.709678	2	Line 1,Line 2B,Line 3,Line4,Line67
Big Lake	CP1066-2.0E	Superior	-92.62269442	46.701436	2	Line 1,Line 2B,Line 3,Line4,Line67
Big Weirgor Creek	CP85-2.5B	Superior	-91.22085823	45.619824	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-1.2S	Superior	-91.24073746	45.614809	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-5.2B	Superior	-91.2058941	45.602861	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-6.4B	Superior	-91.21339365	45.591971	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-7.6W	Superior	-91.22424324	45.580994	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-9.9B	Superior	-91.22860871	45.552168	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-14.6E	Superior	-91.25245848	45.500856	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-19.0S	Superior	-91.25630508	45.453032	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-19.2B	Superior	-91.26040715	45.452642	10	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-25.3E	Superior	-91.28968159	45.391996	10	Line 6A,Line 14,Line 61
Black River	CP1200-0.4B	Superior	-89.99607941	46.505292	5	Line 5
Black River	CP1200-20.6W	Superior	-90.04773288	46.666136	5	Line 5
Black River	CP1200-3.8B	Superior	-90.05294982	46.512134	5	Line 5
Black River	CP1200-4.8B	Superior	-90.07334829	46.511058	5	Line 5
Black River	CP1200-9.0W	Superior	-90.0746603	46.552535	5	Line 5
Black River	CP1439-3.1B	Superior	-85.34056087	46.094532	3	Line 5
Black River	CP1439-3.3E	Superior	-85.34391594	46.091395	3	Line 5
Black River	CP1439-8.9W	Superior	-85.44483218	46.087191	3	Line 5
Bluff Creek	CP1101-0.6B	Superior	-92.01595157	46.682181	4	Line 5
Bluff Creek	CP1101-0.8B	Superior	-92.01502637	46.683885	4	Line 5
Bluff Creek	CP1101-1.0W	Superior	-92.01354246	46.687109	4	Line 5
Bluff Creek	CP1101-1.7W	Superior	-92.01303041	46.697411	4	Line 5
Bois Brule River	CP1121-0.1B	Superior	-91.59756747	46.63301	8	Line 5
Bois Brule River	CP1121-0.8E	Superior	-91.59647366	46.638329	8	Line 5
Bois Brule River	CP1121-12.4E	Superior	-91.60194062	46.73613	8	Line 5
Bois Brule River	CP1121-13.6E	Superior	-91.6102563	46.747517	8	Line 5
Bois Brule River	CP1121-5.5W	Superior	-91.59455057	46.67613	8	Line 5
Bois Brule River	CP1121-5.6E	Superior	-91.59493695	46.677699	8	Line 5
Bois Brule River	CP1121-7.6E	Superior	-91.60260957	46.696771	8	Line 5
Bois Brule River	CP1121-8.6W	Superior	-91.60346476	46.70521	8	Line 5
Brevort River	CP1464-3.5B	Superior	-84.93645482	45.956822	2	Line 5
Brevort River	CP1464-3.7S	Superior	-84.93587303	45.954533	2	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Briar Hill Creek	CP1285-1.2B	Superior	-88.38585649	46.10221	4	Line 5
Briar Hill Creek	CP1285-3.4S	Superior	-88.35051859	46.107317	4	Line 5
Briar Hill Creek	CP1285-4.0B	Superior	-88.33763518	46.107497	4	Line 5
Briar Hill Creek	CP1285-4.2E	Superior	-88.33448987	46.106782	4	Line 5
Cass Lake	CP956-0.0W	Superior	-94.59023066	47.381071	7	Line 1,Line 2B,Line 3,Line4,Line67
Cass Lake	CP956-0.4W	Superior	-94.59602619	47.386612	7	Line 1,Line 2B,Line 3,Line4,Line67
Cass Lake	CP956-0.5W	Superior	-94.58890206	47.372719	7	Line 1,Line 2B,Line 3,Line4,Line67
Cass Lake	CP956-0.6E	Superior	-94.57395784	47.378869	7	Line 1,Line 2B,Line 3,Line4,Line67
Cass Lake	CP956-3.0E	Superior	-94.53617873	47.362141	7	Line 1,Line 2B,Line 3,Line4,Line67
Cass Lake	CP956-3.5E	Superior	-94.52353026	47.379845	7	Line 1,Line 2B,Line 3,Line4,Line67
Cass Lake	CP956-3.5S	Superior	-94.58398764	47.329503	7	Line 1,Line 2B,Line 3,Line4,Line67
Chippewa River	CP88-2.4B	Superior	-91.22951988	45.55231	6	Line 6A,Line 14,Line 61
Chippewa River	CP88-7.0E	Superior	-91.25212019	45.500766	6	Line 6A,Line 14,Line 61
Chippewa River	CP88-11.5S	Superior	-91.25631628	45.452921	6	Line 6A,Line 14,Line 61
Chippewa River	CP88-11.7B	Superior	-91.26075304	45.452887	6	Line 6A,Line 14,Line 61
Chippewa River	CP88-17.8E	Superior	-91.29084959	45.391804	6	Line 6A,Line 14,Line 61
Chippewa River	CP88-24.4E	Superior	-91.32713687	45.338511	6	Line 6A,Line 14,Line 61
Cisco Branch Ontonagon River	CP1232-0.7B	Superior	-89.39889375	46.318601	4	Line 5
Cisco Branch Ontonagon River	CP1232-17.3B	Superior	-89.34334345	46.409571	4	Line 5
Cisco Branch Ontonagon River	CP1232-39.2E	Superior	-89.27681	46.534184	4	Line 5
Cisco Branch Ontonagon River	CP1232-7.0B	Superior	-89.45252169	46.336424	4	Line 5
Clearwater River	CP875-0.9B	Superior	-96.04961332	47.911129	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Clearwater River	CP875-13.8B	Superior	-96.12820953	47.843327	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Clearwater River	CP875-2.2B	Superior	-96.06058896	47.905272	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Clearwater River	CP875-23.3S	Superior	-96.22241556	47.86132	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Clearwater River	CP875-31.7E	Superior	-96.28187928	47.894007	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Clearwater River	CP875-6.3B	Superior	-96.07569539	47.876419	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Clearwater River	CP922-0.3B	Superior	-95.15545107	47.612967	4	Line 1,Line 2B,Line 3,Line4,Line67
Clearwater River	CP922-12.1E	Superior	-95.16954255	47.691613	4	Line 1,Line 2B,Line 3,Line4,Line67
Clearwater River	CP922-18.3W	Superior	-95.20726537	47.743903	4	Line 1,Line 2B,Line 3,Line4,Line67
Clearwater River	CP922-8.7B	Superior	-95.17307916	47.672792	4	Line 1,Line 2B,Line 3,Line4,Line67
Cooks Run	CP1260-0.7B	Superior	-88.88132319	46.166611	12	Line 5
Cooks Run	CP1260-10.2B	Superior	-88.76035129	46.208103	12	Line 5
Cooks Run	CP1260-12.4W	Superior	-88.75427716	46.232574	12	Line 5
Cooks Run	CP1260-14.7B	Superior	-88.71744265	46.23184	12	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Cooks Run	CP1260-15.6B	Superior	-88.70019987	46.229406	12	Line 5
Cooks Run	CP1260-19.6N	Superior	-88.63333597	46.241704	12	Line 5
Cooks Run	CP1260-2.2S	Superior	-88.86202728	46.176157	12	Line 5
Cooks Run	CP1260-3.0N	Superior	-88.84948372	46.176759	12	Line 5
Cooks Run	CP1260-4.8B	Superior	-88.82089929	46.181853	12	Line 5
Cooks Run	CP1260-6.7B	Superior	-88.78738403	46.183431	12	Line 5
Cooks Run	CP1260-7.6B	Superior	-88.77151578	46.185131	12	Line 5
Cooks Run	CP1260-8.2E	Superior	-88.76222077	46.188287	12	Line 5
County Ditch No. 33	CP782-1.5B	Superior	-97.38025893	48.904434	2	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
County Ditch No. 33	CP782-2.6B	Superior	-97.35879564	48.901681	2	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Cut River	CP1452-0.8S	Superior	-85.12672687	46.044134	1	Line 5
Davenport Creek	CP1444-2.7B	Superior	-85.2645628	46.067419	2	Line 5
Davenport Creek	CP1444-3.3S	Superior	-85.26110923	46.062253	2	Line 5
Deer River	CP995-2.6N	Superior	-93.79036961	47.316911	1	Line 1,Line 2B,Line 3,Line4,Line67
Denomie Creek	CP1172-10.5B	Superior	-90.65226385	46.601411	3	Line 5
Denomie Creek	CP1172-11.0W	Superior	-90.65554236	46.605168	3	Line 5
Denomie Creek	CP1172-9.8B	Superior	-90.65466794	46.594505	3	Line 5
Duck Creek	CP1244-0.7B	Superior	-89.17455012	46.268118	7	Line 5
Duck Creek	CP1244-1.3B	Superior	-89.17581761	46.27476	7	Line 5
Duck Creek	CP1244-10.8E	Superior	-89.05399764	46.313332	7	Line 5
Duck Creek	CP1244-17.1B	Superior	-89.07684586	46.35665	7	Line 5
Duck Creek	CP1244-5.1B	Superior	-89.12025586	46.294397	7	Line 5
Duck Creek	CP1244-7.8B	Superior	-89.08601097	46.299992	7	Line 5
Duck Creek	CP1244-9.6B	Superior	-89.0555875	46.299127	7	Line 5
Dutchman Creek	CP1104-1.9W	Superior	-91.94308153	46.679781	1	Line 5
East Savannah River	CP1046-1.1B	Superior	-92.91235916	46.921148	4	Line 1,Line 2B,Line 3,Line4,Line67
East Savannah River	CP1046-11.9S	Superior	-92.76456464	46.874327	4	Line 1,Line 2B,Line 3,Line4,Line67
East Savannah River	CP1046-19.9S	Superior	-92.60395253	46.869418	4	Line 1,Line 2B,Line 3,Line4,Line67
East Savannah River	CP1046-22.4E	Superior	-92.57527852	46.848784	4	Line 1,Line 2B,Line 3,Line4,Line67
Eau Claire River	CP34-6.8N	Superior	-91.88429648	46.263476	5	Line 6A,Line 14,Line 61
Eau Claire River	CP34-8.8W	Superior	-91.92686	46.25309	5	Line 6A,Line 14,Line 61
Eau Claire River	CP34-1.5B	Superior	-91.8002384	46.252057	5	Line 6A,Line 14,Line 61
Eau Claire River	CP34-1.1B	Superior	-91.79815455	46.248605	5	Line 6A,Line 14,Line 61
Eau Claire River	CP34-0.7B	Superior	-91.79335137	46.24481	5	Line 6A,Line 14,Line 61
Escanaba River	CP1342-0.8W	Superior	-87.27160819	45.993302	8	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Escanaba River	CP1342-10.1S	Superior	-87.19631007	45.895128	8	Line 5
Escanaba River	CP1342-19.3W	Superior	-87.09134263	45.840222	8	Line 5
Escanaba River	CP1342-22.1W	Superior	-87.09595271	45.804594	8	Line 5
Escanaba River	CP1342-23.2W	Superior	-87.08103024	45.796518	8	Line 5
Escanaba River	CP1342-23.3B	Superior	-87.07820598	45.794944	8	Line 5
Escanaba River	CP1342-24.8S	Superior	-87.06422909	45.777949	8	Line 5
Escanaba River	CP1342-8.8B	Superior	-87.21317899	45.909238	8	Line 5
Escanaba River Trib.	CP1337-0.5B	Superior	-87.3510286	46.031563	2	Line 5
Escanaba River Trib.	CP1337-6.4W	Superior	-87.27166377	45.993334	2	Line 5
Floodwood Station Ditch	CP1044-0.2B	Superior	-92.93384642	46.939637	7	Line 1,Line 2B,Line 3,Line4,Line67
Floodwood Station Ditch	CP1044-0.3B	Superior	-92.93239672	46.939555	7	Line 1,Line 2B,Line 3,Line4,Line67
Floodwood Station Ditch	CP1044-0.7W	Superior	-92.92306047	46.93936	7	Line 1,Line 2B,Line 3,Line4,Line67
Floodwood Station Ditch	CP1044-1.5B	Superior	-92.92028079	46.929776	7	Line 1,Line 2B,Line 3,Line4,Line67
Floodwood Station Ditch	CP1044-1.6W	Superior	-92.91698378	46.929183	7	Line 1,Line 2B,Line 3,Line4,Line67
Floodwood Station Ditch	CP1044-1.8N	Superior	-92.91454982	46.927783	7	Line 1,Line 2B,Line 3,Line4,Line67
Floodwood Station Ditch	CP1044-12.8S	Superior	-92.76452715	46.874205	7	Line 1,Line 2B,Line 3,Line4,Line67
Ford River	CP1316-11.1B	Superior	-87.63975033	46.084203	4	Line 5
Ford River	CP1316-15.4B	Superior	-87.57380419	46.061007	4	Line 5
Ford River	CP1316-19.7B	Superior	-87.53662925	46.02959	4	Line 5
Ford River	CP1316-2.0S	Superior	-87.76892797	46.077121	4	Line 5
Grant Creek	CP927-12.3B	Superior	-95.01309685	47.484178	5	Line 1,Line 2B,Line 3,Line4,Line67
Grant Creek	CP927-2.2B	Superior	-95.05552922	47.558208	5	Line 1,Line 2B,Line 3,Line4,Line67
Grant Creek	CP927-5.2B	Superior	-95.03786316	47.527752	5	Line 1,Line 2B,Line 3,Line4,Line67
Grant Creek	CP927-6.6B	Superior	-95.02696931	47.513257	5	Line 1,Line 2B,Line 3,Line4,Line67
Grant Creek	CP927-9.6B	Superior	-94.98614965	47.501572	5	Line 1,Line 2B,Line 3,Line4,Line67
Indian River	CP1393-1.0W	Superior	-86.23165357	45.976238	5	Line 5
Indian River	CP1393-1.7N	Superior	-86.2358585	45.973392	5	Line 5
Indian River	CP1393-2.0S	Superior	-86.24239928	45.970564	5	Line 5
Indian River	CP1393-2.5W	Superior	-86.24826532	45.966389	5	Line 5
Indian River	CP1393-3.7W	Superior	-86.24839286	45.951192	5	Line 5
Indian River	CP1508-0.3S US	Superior	-84.60862341	45.412817	4	Line 5
Indian River	CP1508-1.2W US	Superior	-84.62806767	45.403593	4	Line 5
Indian River	CP1508-2.3S	Superior	-84.58178524	45.439484	4	Line 5
Indian River	CP1508-6.0W	Superior	-84.58497405	45.48754	4	Line 5
Iron River	CP1130-0.1B	Superior	-91.42247746	46.618802	7	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Iron River	CP1130-15.5E	Superior	-91.484546	46.747092	7	Line 5
Iron River	CP1130-15.9N	Superior	-91.49206482	46.748703	7	Line 5
Iron River	CP1130-17.4E	Superior	-91.48739059	46.765511	7	Line 5
Iron River	CP1130-5.3B	Superior	-91.4470982	46.655208	7	Line 5
Iron River	CP1130-8.2E	Superior	-91.46689611	46.675807	7	Line 5
Iron River	CP1130-9.7E	Superior	-91.46868353	46.691948	7	Line 5
Iron River	CP1272-1.0B	Superior	-88.67830069	46.115884	11	Line 5
Iron River	CP1272-14.9N	Superior	-88.56644149	46.015456	11	Line 5
Iron River	CP1272-19.7B	Superior	-88.50112225	46.001576	11	Line 5
Iron River	CP1272-2.8B	Superior	-88.67666771	46.100371	11	Line 5
Iron River	CP1272-4.0B	Superior	-88.65788843	46.093839	11	Line 5
Iron River	CP1272-5.0N	Superior	-88.64074213	46.097105	11	Line 5
Iron River	CP1272-5.6W	Superior	-88.63584318	46.090573	11	Line 5
Iron River	CP1272-7.0B	Superior	-88.63704749	46.07353	11	Line 5
Iron River	CP1272-7.8N	Superior	-88.62849477	46.066895	11	Line 5
Iron River	CP1272-8.8B	Superior	-88.62693941	46.058377	11	Line 5
Iron River	CP1272-8.9B	Superior	-88.62849477	46.057097	11	Line 5
Kallander Creek	CP1197-0.8B	Superior	-90.05294982	46.512134	8	Line 5
Kallander Creek	CP1197-18.0W	Superior	-90.04773288	46.666136	8	Line 5
Kallander Creek	CP1197-2.0B	Superior	-90.07334829	46.511058	8	Line 5
Kankakee River	CP37-0.8S	Mid Continent	-88.05528107	41.226608	8	Line 62,Line 78
Kankakee River	CP37-15.7N	Mid Continent	-88.21736335	41.359226	8	Line 6A,Line14,Line 62,Line 78
Kankakee River	CP37-5.4S	Mid Continent	-88.13256041	41.250203	8	Line 62,Line 78
Kankakee River	CP37-9.3E	Mid Continent	-88.15010111	41.300945	8	Line 62,Line 78
Kankakee River	CP37-9.4W	Mid Continent	-88.14718706	41.302984	8	Line 62,Line 78
Little Otter Creek	CP1074-0.7S	Superior	-92.48490454	46.648997	4	Line 1,Line 2B,Line 3,Line4,Line67
Little Otter Creek	CP1074-12.7N	Superior	-92.30854169	46.667816	4	Line 1,Line 2B,Line 3,Line4,Line67
Little Otter Creek	CP1074-4.7B	Superior	-92.42439955	46.660885	4	Line 1,Line 2B,Line 3,Line4,Line67
Little Otter Creek	CP1074-5.6B	Superior	-92.4126048	46.662635	4	Line 1,Line 2B,Line 3,Line4,Line67
Little Pokegama River	CP1090-1.1B	Superior	-92.19261912	46.623734	2	Line 1,Line 2B,Line 3,Line4,Line67
Little Pokegama River	CP1090-5.8B	Superior	-92.16712125	46.659865	2	Line 1,Line 2B,Line 3,Line4,Line67
Lost River	CP886-1.4N	Superior	-95.88033238	47.842629	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP886-14.3B	Superior	-96.00437703	47.842909	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP886-14.9B	Superior	-96.01009941	47.843191	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP886-2.9B	Superior	-95.90196539	47.845472	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Lost River	CP886-4.5S	Superior	-95.92347988	47.842116	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP886-8.9B	Superior	-95.96644766	47.850566	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-2.3B	Superior	-95.51679791	47.730439	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-2.5B	Superior	-95.51918703	47.731672	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-3.5B	Superior	-95.51825114	47.737515	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-3.7B	Superior	-95.51655245	47.739624	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-3.8S	Superior	-95.51415538	47.740182	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-6.5B	Superior	-95.49483114	47.757137	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-6.8B	Superior	-95.49447263	47.760717	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-7.2B	Superior	-95.49508136	47.76498	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-8.7N	Superior	-95.49822052	47.775063	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lost River	CP904-9.2B	Superior	-95.50626017	47.775203	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Louden Coulee	CP781-0.4N	Superior	-97.41618605	48.919958	1	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Lower Millecoquins River	CP1434-4.6B	Superior	-85.47399499	46.095575	1	Line 5
Manistique River	CP1394-2.4N	Superior	-86.2358585	45.973392	4	Line 5
Manistique River	CP1394-2.8S	Superior	-86.24239928	45.970564	4	Line 5
Manistique River	CP1394-3.3W	Superior	-86.24826532	45.966389	4	Line 5
Manistique River	CP1394-4.5W	Superior	-86.24839286	45.951192	4	Line 5
Michigamme River	CP1295-0.6W	Superior	-88.2231918	46.084094	5	Line 5
Michigamme River	CP1295-10.0N	Superior	-88.22336212	46.015527	5	Line 5
Michigamme River	CP1295-11.2E	Superior	-88.20561946	45.991992	5	Line 5
Michigamme River	CP1295-15.0E	Superior	-88.19513924	45.956349	5	Line 5
Michigamme River	CP1295-8.5N	Superior	-88.20927534	46.023988	5	Line 5
Middle Branch Ontonagon River	CP1237-1.0B	Superior	-89.29018187	46.284916	8	Line 5
Middle Branch Ontonagon River	CP1237-10.4S	Superior	-89.17652378	46.274569	8	Line 5
Middle Branch Ontonagon River	CP1237-14.4B	Superior	-89.12025586	46.294397	8	Line 5
Middle Branch Ontonagon River	CP1237-17.1B	Superior	-89.08601714	46.299994	8	Line 5
Middle Branch Ontonagon River	CP1237-18.9B	Superior	-89.05559	46.299125	8	Line 5
Middle Branch Ontonagon River	CP1237-20.2E	Superior	-89.05399764	46.313332	8	Line 5
Middle Branch Ontonagon River	CP1237-26.5B	Superior	-89.07685094	46.356653	8	Line 5
Middle Branch Ontonagon River	CP1237-5.4B	Superior	-89.24085975	46.276805	8	Line 5
Middle River	CP1111-0.4	Superior	-91.80481209	46.647457	3	Line 5
Middle River	CP1111-0.7	Superior	-91.80492197	46.650955	3	Line 5
Middle River	CP1111-5.6W	Superior	-91.82882382	46.689699	3	Line 5
Mississippi River	CP940-1.1E	Superior	-94.86922512	47.458777	3	Line 1,Line 2B,Line 3,Line4,Line67

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Mississippi River	CP940-1.4E	Superior	-94.87941882	47.465612	3	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP940-1.6S	Superior	-94.87712099	47.468466	3	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP986-13.0E	Superior	-93.78153202	47.289363	8	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP986-17.1W	Superior	-93.80520349	47.251238	8	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP986-19.5W	Superior	-93.80218542	47.22488	8	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP986-23.7E	Superior	-93.76083877	47.225386	8	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP986-24.0B	Superior	-93.75804769	47.229131	8	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP986-4.6N	Superior	-93.90336276	47.302107	8	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP986-4.7B	Superior	-93.90152695	47.301995	8	Line 1,Line 2B,Line 3,Line4,Line67
Mississippi River	CP986-7.9S	Superior	-93.86112335	47.313264	8	Line 1,Line 2B,Line 3,Line4,Line67
Montreal River	CP1189-0.7W	Superior	-90.21496334	46.498264	4	Line 5
Montreal River	CP1189-18.5S	Superior	-90.37455943	46.53873	4	Line 5
Montreal River	CP1189-22.2B	Superior	-90.4143952	46.557331	4	Line 5
Montreal River	CP1189-9.1S	Superior	-90.30249348	46.517433	4	Line 5
Morrison Creek	CP1105-2.2N	Superior	-91.936336	46.680766	1	Line 5
Mud Creek	CP452-2.0W	Mid Continent	-88.67926325	41.047984	7	Line 61
Mud Creek	CP452-3.5E	Mid Continent	-88.68146444	41.033564	7	Line 61
Mud Creek	CP452-18.2E	Mid Continent	-88.75736103	41.025464	7	Line 61
Mud Creek	CP452-16.3E	Mid Continent	-88.74041741	41.018541	7	Line 61
Mud Creek	CP452-7.8E	Mid Continent	-88.68651853	41.007771	7	Line 61
Mud Creek	CP452-9.4S	Mid Continent	-88.70063344	41.005506	7	Line 61
Mud Creek	CP452-12.8E	Mid Continent	-88.7193389	41.005472	7	Line 61
Namekagon River	CP54-1.7B	Superior	-91.63484629	45.995787	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-3.9S	Superior	-91.65531262	45.975761	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-6.0B	Superior	-91.68111843	45.956971	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-6.4S	Superior	-91.68644632	45.953488	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-24.9S	Superior	-91.88852695	45.94765	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-8.9W	Superior	-91.72075003	45.942296	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-11.3W	Superior	-91.75032152	45.932285	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-22.6S	Superior	-91.86825779	45.921476	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-15.0N	Superior	-91.76414028	45.915905	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-16.5B	Superior	-91.78127463	45.910326	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-19.6N	Superior	-91.82471075	45.909572	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-19.8S	Superior	-91.82543823	45.906953	13	Line 6A,Line 14,Line 61
Namekagon River	CP54-19.0N	Superior	-91.81547942	45.906549	13	Line 6A,Line 14,Line 61

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Nash Creek	CP1270-0.8B	Superior	-88.70204601	46.126223	11	Line 5
Nash Creek	CP1270-10.0N	Superior	-88.62785	46.066986	11	Line 5
Nash Creek	CP1270-11.0B	Superior	-88.62684849	46.058372	11	Line 5
Nash Creek	CP1270-11.1B	Superior	-88.62844836	46.057412	11	Line 5
Nash Creek	CP1270-17.2N	Superior	-88.56621945	46.015527	11	Line 5
Nash Creek	CP1270-3.5B	Superior	-88.67811181	46.116051	11	Line 5
Nash Creek	CP1270-5.0B	Superior	-88.67631675	46.099895	11	Line 5
Nash Creek	CP1270-6.3B	Superior	-88.65776775	46.093912	11	Line 5
Nash Creek	CP1270-7.3N	Superior	-88.64041546	46.096904	11	Line 5
Nash Creek	CP1270-7.9W	Superior	-88.63562862	46.090322	11	Line 5
Nash Creek	CP1270-9.2B	Superior	-88.63704749	46.07353	11	Line 5
Necktie River	CP945-1.3B	Superior	-94.77743081	47.388655	6	Line 1,Line 2B,Line 3,Line4,Line67
Necktie River	CP945-11.4B	Superior	-94.73678989	47.3097	6	Line 1,Line 2B,Line 3,Line4,Line67
Necktie River	CP945-12.7B	Superior	-94.75046388	47.296979	6	Line 1,Line 2B,Line 3,Line4,Line67
Necktie River	CP945-2.9B	Superior	-94.75565746	47.383471	6	Line 1,Line 2B,Line 3,Line4,Line67
Necktie River	CP945-5.9B	Superior	-94.73401309	47.362494	6	Line 1,Line 2B,Line 3,Line4,Line67
Necktie River	CP945-8.4B	Superior	-94.73397332	47.337386	6	Line 1,Line 2B,Line 3,Line4,Line67
Nemadji River	CP1099-0.0N	Superior	-92.04829525	46.686149	6	Line 5
Nemadji River	CP1099-0.4N	Superior	-92.04172982	46.689025	6	Line 5
Nemadji River	CP1099-1.4N	Superior	-92.03720959	46.694796	6	Line 5
Nemadji River	CP1099-1.6B	Superior	-92.034765	46.697218	6	Line 5
Nemadji River	CP1099-1.7B	Superior	-92.03275178	46.697471	6	Line 5
Nemadji River	CP1099-2.3W	Superior	-92.03499337	46.700452	6	Line 5
Nemadji River	CP2-5.3W	Superior	-92.03440696	46.699811	7	Line 6A,Line 14,Line 61
Nemadji River	CP2-4.7B	Superior	-92.03275487	46.697474	7	Line 6A,Line 14,Line 61
Nemadji River	CP2-4.6B	Superior	-92.03477015	46.697222	7	Line 6A,Line 14,Line 61
Nemadji River	CP2-4.4N	Superior	-92.03720425	46.694786	7	Line 6A,Line 14,Line 61
Nemadji River	CP2-3.4N	Superior	-92.0416933	46.689084	7	Line 6A,Line 14,Line 61
Nemadji River	CP2-3.0N	Superior	-92.04772338	46.686136	7	Line 6A,Line 14,Line 61
Nemadji River	CP2-1.7N	Superior	-92.06060801	46.680919	7	Line 6A,Line 14,Line 61
North Fish Creek	CP1150-3.0B	Superior	-90.97575	46.574899	3	Line 5
North Fish Creek	CP1150-4.0B	Superior	-90.96594984	46.578705	3	Line 5
North Fish Creek	CP1150-6.8W	Superior	-90.94496169	46.588608	3	Line 5
Paint River	CP1290-0.2W	Superior	-88.31212332	46.08364	12	Line 5
Paint River	CP1290-10.6E	Superior	-88.20552461	45.991861	12	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Paint River	CP1290-10.8W	Superior	-88.27599995	45.981455	12	Line 5
Paint River	CP1290-12.9S	Superior	-88.2498812	45.963115	12	Line 5
Paint River	CP1290-14.4E	Superior	-88.1950118	45.956367	12	Line 5
Paint River	CP1290-15.0S	Superior	-88.21925761	45.947043	12	Line 5
Paint River	CP1290-4.0W	Superior	-88.27181632	46.050213	12	Line 5
Paint River	CP1290-6.9E	Superior	-88.25757189	46.021623	12	Line 5
Paint River	CP1290-7.5W	Superior	-88.25824377	46.013157	12	Line 5
Paint River	CP1290-8.0B	Superior	-88.24179426	46.015038	12	Line 5
Paint River	CP1290-8.1W	Superior	-88.26198487	46.005381	12	Line 5
Paint River	CP1290-8.9N	Superior	-88.22327265	46.015361	12	Line 5
Parks Creek Tributary	CP1297-13.2E	Superior	-88.19491336	45.956862	4	Line 5
Parks Creek Tributary	CP1297-7.8N	Superior	-88.20947334	46.023619	4	Line 5
Parks Creek Tributary	CP1297-8.3N	Superior	-88.2237078	46.015755	4	Line 5
Parks Creek Tributary	CP1297-9.4E	Superior	-88.20544345	45.991704	4	Line 5
Pelton Creek	CP1222-4.0W	Superior	-89.55105555	46.409417	1	Line 5
Pembina	CP776-0.8S	Superior	-97.50166559	48.977627	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-1.9B	Superior	-97.48833769	48.978583	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-11.9B	Superior	-97.40390769	48.956227	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-15.9S	Superior	-97.35909953	48.94925	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-18.0S	Superior	-97.33387827	48.94835	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-21.5B	Superior	-97.29389767	48.943037	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-25.9S	Superior	-97.26916354	48.955651	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-26.7B	Superior	-97.25997641	48.956146	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-28.6B	Superior	-97.24272638	48.966246	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-28.7W	Superior	-97.23854516	48.965169	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-6.8B	Superior	-97.44707491	48.967571	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pembina	CP776-8.3B	Superior	-97.43497855	48.963267	12	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Pigeon River	CP1529-11.0B	Superior	-84.42889337	45.224219	10	Line 5
Pigeon River	CP1529-13.2E	Superior	-84.44619812	45.244448	10	Line 5
Pigeon River	CP1529-15.9B	Superior	-84.45974343	45.271995	10	Line 5
Pigeon River	CP1529-17.5E	Superior	-84.46757087	45.289334	10	Line 5
Pigeon River	CP1529-2.0B	Superior	-84.4728809	45.145838	10	Line 5
Pigeon River	CP1529-23.0B	Superior	-84.49483536	45.330403	10	Line 5
Pigeon River	CP1529-25.9B	Superior	-84.50741128	45.364159	10	Line 5
Pigeon River	CP1529-26.9B	Superior	-84.51475557	45.374516	10	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Pigeon River	CP1529-3.2B	Superior	-84.46763875	45.156266	10	Line 5
Pigeon River	CP1529-6.8B	Superior	-84.42623394	45.177309	10	Line 5
Planter Creek	CP1203-0.3B	Superior	-89.93635181	46.5047	8	Line 5
Planter Creek	CP1203-12.8W	Superior	-90.07452812	46.552222	8	Line 5
Planter Creek	CP1203-2.6W	Superior	-89.97228612	46.510699	8	Line 5
Planter Creek	CP1203-24.4W	Superior	-90.04773288	46.666136	8	Line 5
Planter Creek	CP1203-3.1B	Superior	-89.97974685	46.509512	8	Line 5
Planter Creek	CP1203-4.3S	Superior	-89.99677444	46.506086	8	Line 5
Planter Creek	CP1203-7.5B	Superior	-90.05294982	46.512134	8	Line 5
Planter Creek	CP1203-8.6B	Superior	-90.07334829	46.511058	8	Line 5
Pokegama River	CP1094-1.2B	Superior	-92.11906083	46.661803	3	Line 1,Line 2B,Line 3,Line4,Line67
Pokegama River	CP1094-1.8B	Superior	-92.12686144	46.665869	3	Line 1,Line 2B,Line 3,Line4,Line67
Pokegama River	CP1094-2.8E	Superior	-92.13456087	46.671349	3	Line 1,Line 2B,Line 3,Line4,Line67
Poplar River	CP1112-1.1B	Superior	-91.78544264	46.64824	3	Line 5
Poplar River	CP1112-6.4B	Superior	-91.79266672	46.687176	3	Line 5
Poplar River	CP1112-7.2E	Superior	-91.79653624	46.69349	3	Line 5
Prairie River	CP1011-0.1W	Superior	-93.48942521	47.251405	7	Line 1,Line 2B,Line 3,Line4,Line67
Prairie River	CP1011-0.5B	Superior	-93.48631427	47.246107	7	Line 1,Line 2B,Line 3,Line4,Line67
Prairie River	CP1011-1.4B	Superior	-93.47864277	47.219371	7	Line 1,Line 2B,Line 3,Line4,Line67
Prairie River	CP1011-15.1W	Superior	-93.40521791	47.129115	7	Line 1,Line 2B,Line 3,Line4,Line67
Prairie River	CP1011-17.5E	Superior	-93.39038492	47.108414	7	Line 1,Line 2B,Line 3,Line4,Line67
Prairie River	CP1011-33.1W	Superior	-93.32287826	47.034295	7	Line 1,Line 2B,Line 3,Line4,Line67
Prairie River	CP1011-8.1N	Superior	-93.41827661	47.17347	7	Line 1,Line 2B,Line 3,Line4,Line67
Presque Isle River	CP1217-1.6W	Superior	-89.6993695	46.409308	8	Line 5
Presque Isle River	CP1217-18.1B	Superior	-89.77776826	46.547314	8	Line 5
Presque Isle River	CP1217-2.1W	Superior	-89.69587891	46.415276	8	Line 5
Presque Isle River	CP1217-28.0B	Superior	-89.87744125	46.641991	8	Line 5
Presque Isle River	CP1217-3.4B	Superior	-89.68150494	46.430149	8	Line 5
Presque Isle River	CP1217-36.2B	Superior	-89.97412169	46.695798	8	Line 5
Presque Isle River	CP1217-37.1W	Superior	-89.97257945	46.708112	8	Line 5
Presque Isle River	CP1217-5.0B	Superior	-89.69418661	46.445091	8	Line 5
Rapid River	CP1357-0.7E	Superior	-86.96524947	45.937535	3	Line 5
Rapid River	CP1357-1.5B	Superior	-86.96363272	45.926555	3	Line 5
Rapid River	CP1357-2.7E	Superior	-86.96572409	45.914266	3	Line 5
Red Lake River	CP864-2.3B	Superior	-96.20279914	48.020438	8	Line 1,Line 2B,Line 3,Line4,Line 65,Line67

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Red Lake River	CP864-21.5B	Superior	-96.24008366	47.891947	8	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red Lake River	CP864-23.0B	Superior	-96.25994102	47.894237	8	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red Lake River	CP864-25.6B	Superior	-96.27492877	47.897152	8	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red Lake River	CP864-26.3S	Superior	-96.28190832	47.893879	8	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red Lake River	CP864-3.2W	Superior	-96.21075759	48.010808	8	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red Lake River	CP864-4.7N	Superior	-96.20852152	48.00939	8	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red Lake River	CP864-9.6W	Superior	-96.19376061	47.962947	8	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-0.1W US	Superior	-97.12180982	48.702039	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-0.4E	Superior	-97.10889765	48.707334	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-1.3E	Superior	-97.12238192	48.716555	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-12.9N	Superior	-97.17203931	48.803828	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-15.8E	Superior	-97.18117701	48.818136	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-18.2E	Superior	-97.17375996	48.842736	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-2.4W	Superior	-97.13784401	48.727024	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-2.7E	Superior	-97.12836092	48.730896	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-3.9W	Superior	-97.14159864	48.737778	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-5.1N	Superior	-97.14452429	48.751383	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-6.2E	Superior	-97.14659307	48.761476	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-7.3E	Superior	-97.15146686	48.772687	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Red River of the North	CP802-9.3E	Superior	-97.15756278	48.787781	13	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
S. Br. Iron River	CP1268-0.3B	Superior	-88.73117841	46.126772	13	Line 5
S. Br. Iron River	CP1268-0.8B	Superior	-88.72357786	46.124271	13	Line 5
S. Br. Iron River	CP1268-10.4B	Superior	-88.63731814	46.073465	13	Line 5
S. Br. Iron River	CP1268-11.2N	Superior	-88.62808652	46.066895	13	Line 5
S. Br. Iron River	CP1268-12.3B	Superior	-88.62705013	46.058446	13	Line 5
S. Br. Iron River	CP1268-12.4B	Superior	-88.62829318	46.057441	13	Line 5
S. Br. Iron River	CP1268-18.4N	Superior	-88.56623135	46.01552	13	Line 5
S. Br. Iron River	CP1268-2.0B	Superior	-88.70196523	46.125944	13	Line 5
S. Br. Iron River	CP1268-4.7B	Superior	-88.67819907	46.116134	13	Line 5
S. Br. Iron River	CP1268-6.4B	Superior	-88.6766148	46.10007	13	Line 5
S. Br. Iron River	CP1268-7.6B	Superior	-88.65799374	46.093785	13	Line 5
S. Br. Iron River	CP1268-8.6N	Superior	-88.64047392	46.096741	13	Line 5
S. Br. Iron River	CP1268-9.2W	Superior	-88.63555216	46.090528	13	Line 5
S. Branch Paint River	CP1254-0.3B	Superior	-88.99529708	46.193114	13	Line 5
S. Branch Paint River	CP1254-11.1B	Superior	-88.86877351	46.225729	13	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
S. Branch Paint River	CP1254-16.0B	Superior	-88.81986077	46.191275	13	Line 5
S. Branch Paint River	CP1254-18.7B	Superior	-88.78731425	46.18343	13	Line 5
S. Branch Paint River	CP1254-19.6B	Superior	-88.77151945	46.18513	13	Line 5
S. Branch Paint River	CP1254-2.0W	Superior	-88.97709754	46.207722	13	Line 5
S. Branch Paint River	CP1254-20.2E	Superior	-88.76359826	46.18912	13	Line 5
S. Branch Paint River	CP1254-22.2B	Superior	-88.76033888	46.208114	13	Line 5
S. Branch Paint River	CP1254-24.7N	Superior	-88.7517487	46.234416	13	Line 5
S. Branch Paint River	CP1254-26.8B	Superior	-88.71735415	46.231829	13	Line 5
S. Branch Paint River	CP1254-27.7B	Superior	-88.70021832	46.229329	13	Line 5
S. Branch Paint River	CP1254-5.2B	Superior	-88.93897707	46.227399	13	Line 5
S. Branch Paint River	CP1254-6.9B	Superior	-88.90916606	46.221448	13	Line 5
Sand Creek	CP66-1.1B	Superior	-91.45723177	45.860969	4	Line 6A,Line 14,Line 61
Sand Creek	CP66-0.2B	Superior	-91.47157552	45.855027	4	Line 6A,Line 14,Line 61
Sand Creek	CP66-0.3N-US	Superior	-91.4784699	45.851504	4	Line 6A,Line 14,Line 61
Sand Creek	CP66-1.6S	Superior	-91.45701604	45.850494	4	Line 6A,Line 14,Line 61
Siemens Creek	CP1194-0.1W	Superior	-90.12436955	46.500946	7	Line 5
Siemens Creek	CP1194-13.7S	Superior	-90.30249348	46.517433	7	Line 5
Siemens Creek	CP1194-23.1S	Superior	-90.374106	46.53913	7	Line 5
Siemens Creek	CP1194-3.0B	Superior	-90.15591833	46.512877	7	Line 5
Siemens Creek	CP1194-4.1B	Superior	-90.17691986	46.513398	7	Line 5
Siemens Creek	CP1194-5.1B	Superior	-90.19752829	46.515863	7	Line 5
Siemens Creek	CP1194-6.2B	Superior	-90.21863157	46.514421	7	Line 5
Six Mile Lake Tributary Ditch	CP975-3.8E	Superior	-94.12463061	47.309629	1	Line 1,Line 2B,Line 3,Line4,Line67
Slate River	CP1224-4.4W	Superior	-89.55159957	46.410765	1	Line 5
South Fish Creek	CP1153-1.8B	Superior	-90.95220876	46.571067	2	Line 5
South Fish Creek	CP1153-4.0W	Superior	-90.94496169	46.588608	2	Line 5
Spoon Creek	CP1177/1178-5.0B	Superior	-90.43975665	46.560442	3	Line 5
Spoon Creek	CP1177/1178-5.3W	Superior	-90.43681013	46.562414	3	Line 5
Spoon Creek	CP1177-0.4E	Superior	-90.45300739	46.514163	3	Line 5
Spoon Creek Tributary	CP1178-0.1W	Superior	-90.44844578	46.51064	1	Line 5
St. Croix River	CP33-5.6N	Superior	-91.88429648	46.263476	3	Line 6A,Line 14,Line 61
St. Croix River	CP33-7.6W	Superior	-91.92686	46.25309	3	Line 6A,Line 14,Line 61
St. Croix River	CP33-0.2B	Superior	-91.80022302	46.252026	3	Line 6A,Line 14,Line 61
Stoney Brook	CP1062-0.1E	Superior	-92.67521356	46.756737	5	Line 1,Line 2B,Line 3,Line4,Line67
Stoney Brook	CP1062-10.3B	Superior	-92.60707204	46.854708	5	Line 1,Line 2B,Line 3,Line4,Line67

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Stoney Brook	CP1062-10.8E	Superior	-92.60449763	46.861721	5	Line 1,Line 2B,Line 3,Line4,Line67
Stoney Brook	CP1062-3.4B	Superior	-92.63705135	46.781508	5	Line 1,Line 2B,Line 3,Line4,Line67
Stoney Brook	CP1062-5.7E	Superior	-92.62436417	46.810005	5	Line 1,Line 2B,Line 3,Line4,Line67
Straits of Mackinac	CP1477-3.8E	Superior	-84.72438748	45.780421	4	Line 5
Straits of Mackinac	CP1477-4.0E	Superior	-84.72359639	45.777938	4	Line 5
Straits of Mackinac	CP1477-5.0E	Superior	-84.70268132	45.854355	4	Line 5
Straits of Mackinac	CP1477-6.9E	Superior	-84.72510372	45.874975	4	Line 5
Sturgeon River	CP1370-0.4W	Superior	-86.70547651	45.936056	9	Line 5
Sturgeon River	CP1370-10.5W	Superior	-86.67890697	45.86633	9	Line 5
Sturgeon River	CP1370-13.3B	Superior	-86.66948355	45.850718	9	Line 5
Sturgeon River	CP1370-14.2W	Superior	-86.67555697	45.844996	9	Line 5
Sturgeon River	CP1370-14.7B	Superior	-86.66863258	45.84088	9	Line 5
Sturgeon River	CP1370-14.9E	Superior	-86.66709598	45.838442	9	Line 5
Sturgeon River	CP1370-15.2E	Superior	-86.66231039	45.838617	9	Line 5
Sturgeon River	CP1370-6.2B	Superior	-86.7037272	45.89548	9	Line 5
Sturgeon River	CP1370-7.7W	Superior	-86.69969114	45.882834	9	Line 5
Summit Creek	CP71-3.6N	Superior	-91.3972599	45.803825	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-3.9N	Superior	-91.3917502	45.801483	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-4.3N	Superior	-91.38542124	45.800154	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-7.3N	Superior	-91.3333352	45.800148	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-1.2B	Superior	-91.42566257	45.797707	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-7.8N	Superior	-91.32394866	45.797138	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-1.0B	Superior	-91.42779206	45.79569	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-6.1B	Superior	-91.35234876	45.795313	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-8.9N	Superior	-91.30506612	45.793475	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-8.3B	Superior	-91.31762345	45.792878	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-8.5S	Superior	-91.31372322	45.792092	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-0.4B	Superior	-91.43475253	45.78993	18	Line 61
Summit Creek	CP71-10.9B	Superior	-91.27820438	45.776999	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-11.8B	Superior	-91.26660502	45.770605	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-14.0S	Superior	-91.22493348	45.766622	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-14.1B	Superior	-91.22166149	45.765834	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-23.7E	Superior	-91.18100618	45.671085	18	Line 6A,Line 14,Line 61
Summit Creek	CP71-32.3W	Superior	-91.22390748	45.581524	18	Line 6A,Line 14,Line 61
Swan River	CP1024-1.5E	Superior	-93.26196697	47.10891	4	Line 1,Line 2B,Line 3,Line4,Line67

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Swan River	CP1024-13.2B	Superior	-93.25293519	47.057189	4	Line 1,Line 2B,Line 3,Line4,Line67
Swan River	CP1024-14.7B	Superior	-93.23365214	47.054274	4	Line 1,Line 2B,Line 3,Line4,Line67
Swan River	CP1024-15.5B	Superior	-93.22883717	47.051095	4	Line 1,Line 2B,Line 3,Line4,Line67
Tacoosh River	CP1353-1.0B	Superior	-87.05282331	45.955874	7	Line 5
Tacoosh River	CP1353-4.0B	Superior	-87.01340011	45.945215	7	Line 5
Tacoosh River	CP1353-5.7B	Superior	-86.99079982	45.942315	7	Line 5
Tacoosh River	CP1353-6.3B	Superior	-86.98224007	45.937668	7	Line 5
Tacoosh River	CP1353-7.2B	Superior	-86.9737912	45.930527	7	Line 5
Tacoosh River	CP1353-7.5B	Superior	-86.97140142	45.926625	7	Line 5
Tacoosh River	CP1353-8.7E	Superior	-86.96600607	45.914784	7	Line 5
Tamarac River	CP829-11.2S	Superior	-96.79473853	48.396576	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tamarac River	CP829-12.2B	Superior	-96.80249808	48.401966	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tamarac River	CP829-15.1B	Superior	-96.82393465	48.404204	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tamarac River	CP829-2.0S	Superior	-96.7358511	48.41204	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tamarac River	CP829-3.5B	Superior	-96.7472321	48.412073	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tamarac River	CP829-9.4B	Superior	-96.78353653	48.400421	6	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Thornapple River	CP94-4.8B	Superior	-91.23618554	45.474586	7	Line 6A,Line 14,Line 61
Thornapple River	CP94-7.2S	Superior	-91.25630399	45.452923	7	Line 6A,Line 14,Line 61
Thornapple River	CP94-7.5B	Superior	-91.2604634	45.452657	7	Line 6A,Line 14,Line 61
Thornapple River	CP94-13.6E	Superior	-91.2896311	45.391895	7	Line 6A,Line 14,Line 61
Thornapple River	CP94-20.0E	Superior	-91.3268417	45.339053	7	Line 6A,Line 14,Line 61
Thornapple River	CP94-28.1N	Superior	-91.19822976	45.304857	7	Line 6A,Line 14,Line 61
Thornapple River	CP94-26.1B	Superior	-91.23734924	45.297463	7	Line 6A,Line 14,Line 61
Tongue River	CP786-0.6B	Superior	-97.3467139	48.876315	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-1.9B	Superior	-97.3447455	48.890867	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-12.4S	Superior	-97.26949324	48.955817	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-13.2B	Superior	-97.25995489	48.956318	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-15.1B	Superior	-97.24273563	48.966207	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-15.2W	Superior	-97.23795914	48.96619	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-3.5E	Superior	-97.32769395	48.90537	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-4.9B	Superior	-97.3189263	48.919943	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-6.3B	Superior	-97.30171851	48.934318	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River	CP786-8.0B	Superior	-97.29381392	48.943111	10	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River Cutoff	CP783-0.5B	Superior	-97.38120749	48.898078	2	Line 1,Line 2B,Line 3,Line4,Line 65,Line67
Tongue River Cutoff	CP783-2.5B	Superior	-97.33735646	48.898271	2	Line 1,Line 2B,Line 3,Line4,Line 65,Line67

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Totogatic River	CP41-21.1N	Superior	-91.92425983	46.17116	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-20.0B	Superior	-91.90062215	46.16907	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-18.5W	Superior	-91.88789495	46.158049	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-17.5W	Superior	-91.88216823	46.15412	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-22.2E	Superior	-91.92289226	46.152317	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-1.5B	Superior	-91.75297055	46.15044	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-10.5B	Superior	-91.82320277	46.14638	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-9.9B	Superior	-91.8141471	46.143507	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-23.3W	Superior	-91.93978487	46.139545	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-8.0B	Superior	-91.8099014	46.131038	11	Line 6A,Line 14,Line 61
Totogatic River	CP41-25.0W	Superior	-91.93455418	46.120335	11	Line 6A,Line 14,Line 61
Welch Creek	CP1191-0.3B	Superior	-90.17676941	46.497282	4	Line 5
Welch Creek	CP1191-11.8S	Superior	-90.30249348	46.517433	4	Line 5
Welch Creek	CP1191-2.4B	Superior	-90.19781332	46.508519	4	Line 5
Welch Creek	CP1191-21.3S	Superior	-90.37456204	46.538734	4	Line 5
West Mile Creek	CP1436-1.6B	Superior	-85.42741222	46.102695	3	Line 5
West Mile Creek	CP1436-1.7S	Superior	-85.4271862	46.101754	3	Line 5
West Mile Creek	CP1436-3.1W	Superior	-85.4445857	46.086948	3	Line 5
White Fish River	CP1358-1.7B	Superior	-86.94611627	45.925683	3	Line 5
White Fish River	CP1358-2.9E	Superior	-86.95125818	45.908815	3	Line 5
White Fish River	CP1358-3.9E	Superior	-86.96659383	45.914327	3	Line 5
White River	CP1163-10.0N	Superior	-90.68889106	46.606849	5	Line 5
White River	CP1163-10.1E	Superior	-90.68599634	46.608183	5	Line 5
White River	CP-1163-10.5E	Superior	-90.682293	46.610824	5	Line 5
White River	CP1163-14.6S	Superior	-90.65162242	46.637757	5	Line 5
White River	CP-1163-9.2W	Superior	-90.70259493	46.608521	5	Line 5
Aux Sable Creek	CP434-4.1	Chicago	-88.30035124	41.48341768	4	Line 14
Aux Sable Creek	CP434-7.0	Chicago	-88.3089039	41.45409368	4	Line 14
Aux Sable Creek	CP434-10.0	Chicago	-88.34780613	41.41704931	4	Line 14
Aux Sable Creek	CP434-14.6	Chicago	-88.33062937	41.39657492	4	Line 14
Beaver Creek	CP351-11.8	Chicago	-88.851611	42.327651	5	Line 61
Beaver Creek	CP351-17.8	Chicago	-88.905096	42.305377	5	Line 61
Beaver Creek	CP351-19.4	Chicago	-88.909752	42.290907	5	Line 61
Beaver Creek	CP351-2.8	Chicago	-88.789018	42.393167	5	Line 61
Beaver Creek	CP351-5.6	Chicago	-88.793787	42.363949	5	Line 61

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Big Rock Creek	CP408-1.9	Chicago	-88.50772205	41.73336806	5	Line 14
Big Rock Creek	CP408-2.7	Chicago	-88.49812602	41.72804591	5	Line 14
Big Rock Creek	CP408-4.2	Chicago	-88.493917	41.7138625	5	Line 14
Big Rock Creek	CP408-6.1	Chicago	-88.51464629	41.69491516	5	Line 14
Big Rock Creek	CP408-8.6	Chicago	-88.52408327	41.66645081	5	Line 14
Boone Creek	CP365-2.1	Chicago	-88.30479088	42.33302688	9	Line 6A
Boone Creek	CP365-3.4	Chicago	-88.29229699	42.34598715	9	Line 6A
Boone Creek	CP365-5.3N	Chicago	-88.26156436	42.34375985	9	Line 6A
Boone Creek	CP365-5.2	Chicago	-88.26234205	42.3430018	9	Line 6A
Boone Creek	CP365-7.8	Chicago	-88.25021697	42.30962455	9	Line 6A
Boone Creek	CP365-9.9	Chicago	-88.22794351	42.28498698	9	Line 6A
Boone Creek	CP365-14.6	Chicago	-88.21429677	42.24326865	9	Line 6A
Boone Creek	CP365-16.2	Chicago	-88.18645819	42.23878433	9	Line 6A
Boone Creek	CP365-20.3	Chicago	-88.2139579	42.2049571	9	Line 6A
Chicago Sanitary & Ship Canal	CP425-10.3	Chicago	-88.09751422	41.508803	4	Line 6A
Chicago Sanitary & Ship Canal	CP425-18.5	Chicago	-88.19538513	41.422984	4	Line 14,Line 6A
Chicago Sanitary & Ship Canal	CP425-24.0	Chicago	-88.21740401	41.359276	4	Line 6A,Line14,Line 62,Line 78
Chicago Sanitary & Ship Canal	CP425-8.0	Chicago	-88.08359939	41.537948	4	Line 6A
Chicago Ship Canal/Des Plaines	CP425-1.2	Chicago	-88.06429946	41.628446	2	Line 6A
Chicago Ship Canal/Des Plaines	CP425-5.5	Chicago	-88.07792333	41.569848	2	Line 6A
Deer Creek	CP458-4.3	Chicago	-87.60943782	41.54141766	4	Line 6A,Line 64,Line 78
Deer Creek	CP458-6.4	Chicago	-87.62509848	41.54759689	4	Line 6A,Line 64,Line 78
Deer Creek	CP458-3.5	Chicago	-87.59728678	41.53646912	4	Line 6A,Line 64,Line 78
Deer Creek	CP458-2.0	Chicago	-87.59001481	41.52082259	4	Line 6A,Line 64,Line 78
Des Plaines River	CP445-12.0	Chicago	-88.21740401	41.359276	5	Line 6A,Line14,Line 62,Line 78
Des Plaines River	CP445-6.5	Chicago	-88.19538513	41.422984	5	Line 14,Line 6A
Des Plaines River	CP445-9.5	Chicago	-88.23064674	41.391668	5	Line 14,Line 6A
Des Plaines River	CP425-3.7	Chicago	-88.0687561	41.59620322	5	Line 6A
Des Plaines River	CP425-4.8	Chicago	-88.07234172	41.58200307	5	Line 6A
DuPage River	CP440-6.1	Chicago	-88.22822223	41.42017913	7	Line 14,Line 6A
DuPage River	CP418-1.8	Chicago	-88.19078345	41.6368282	7	Line 6A
DuPage River	CP418-3.6	Chicago	-88.20172148	41.61697109	7	Line 6A
DuPage River	CP418-5.8	Chicago	-88.22435317	41.59239937	7	Line 6A
DuPage River	CP418-9.1	Chicago	-88.1893377	41.56520459	7	Line 6A
DuPage River	CP418-13.3	Chicago	-88.20041594	41.51871261	7	Line 6A

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
DuPage River	CP440-1.4	Chicago	-88.20923828	41.46802367	7	Line 14,Line 6A
Fox River	CP421-11.9	Chicago	-88.83238919	41.349762	13	Line 62,Line 14
Fox River	CP421-13.0	Chicago	-88.84215941	41.343536	13	Line 62,Line 14
Fox River	CP421-19.0	Chicago	-88.94596497	41.320585	13	Line 62,Line 14
Fox River	CP421-21.2	Chicago	-88.98207202	41.323583	13	Line 62,Line 14
Fox River	CP421-4.5	Chicago	-88.77324572	41.426895	13	Line 62,Line 14
Fox River	CP421-7.3	Chicago	-88.79020986	41.38765	13	Line 62,Line 14
Fox River	CP419-14.1	Chicago	-88.68578027	41.48628897	13	Line 14
Fox River	CP419-20.3	Chicago	-88.76300963	41.43998187	13	Line 62,Line 14
Fox River	CP419-1.0	Chicago	-88.56279679	41.60700651	13	Line 14
Fox River	CP419-4.4	Chicago	-88.59981046	41.56881389	13	Line 14
Fox River	CP419-6.2	Chicago	-88.62472501	41.5543047	13	Line 14
Fox River	CP419-9.5	Chicago	-88.68418702	41.54013215	13	Line 14
Fox River	CP419-11.8	Chicago	-88.69902859	41.51297534	13	Line 14
Fox River	CP377-3.3	Chicago	-88.28262913	42.1710785	13	Line 6A
Fox River	CP377-4.9	Chicago	-88.29351082	42.15166617	13	Line 6A
Fox River	CP377-6.3	Chicago	-88.27827065	42.13834555	13	Line 6A
Fox River	CP377-7.4	Chicago	-88.28457071	42.12541633	13	Line 6A
Fox River	CP377-8.2	Chicago	-88.29364383	42.11460582	13	Line 6A
Fox River	CP377-9.3	Chicago	-88.28170835	42.10156446	13	Line 6A
Fox River	CP377-11.5	Chicago	-88.27401582	42.07619613	13	Line 6A
Fox River	CP377-12.1	Chicago	-88.27225027	42.06795843	13	Line 6A
Fox River	CP377-13.5	Chicago	-88.28906898	42.05395546	13	Line 6A
Fox River	CP377-16.3	Chicago	-88.27816689	42.01804681	13	Line 6A
Fox River	CP377-20.1	Chicago	-88.30047961	41.96978016	13	Line 6A
Fox River	CP377-25.1E	Chicago	-88.31635068	41.92007026	13	Line 6A
Fox River	CP377-25.1W	Chicago	-88.31856137	41.92018422	13	Line 6A
Hickory Creek	CP447-6.3	Chicago	-87.84979997	41.52083534	7	Line 6A,Line 64
Hickory Creek	CP447-8.9	Chicago	-87.88894849	41.5180907	7	Line 6A,Line 64
Hickory Creek	CP447-11.5	Chicago	-87.92785678	41.51803257	7	Line 6A,Line 14,Line 64
Hickory Creek	CP447-12.9	Chicago	-87.94850837	41.52538417	7	Line 6A,Line 14,Line 64
Hickory Creek	CP447-3.1	Chicago	-87.81710182	41.4979215	7	Line 6A,Line 64
Hickory Creek	CP447-2.0	Chicago	-87.80256483	41.49447532	7	Line 6A,Line 64
Hickory Creek	CP447-4.9	Chicago	-87.83223395	41.51364801	7	Line 6A,Line 64
Illinois River	CP432-10.3	Chicago	-88.94578819	41.320658	4	Line 62,Line 14

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Illinois River	CP432-10.3	Chicago	-88.93976184	41.311151	4	Line 62,Line 14
Illinois River	CP432-12.4	Chicago	-88.9816947	41.323524	4	Line 62,Line 14
Illinois River	CP432-4.3	Chicago	-88.84178275	41.34215	4	Line 62,Line 14
Kishwaukee Coon	CP363-10.6	Chicago	-88.93011487	42.253832	6	Line 61
Kishwaukee Coon	CP363-12.7	Chicago	-88.95467707	42.235972	6	Line 61
Kishwaukee Coon	CP363-17.4	Chicago	-88.9995664	42.194468	6	Line 61
Kishwaukee Coon	CP363-2.5	Chicago	-88.82810461	42.263274	6	Line 61
Kishwaukee Coon	CP363-21.2	Chicago	-89.05602268	42.182936	6	Line 61
Kishwaukee Coon	CP363-3.7	Chicago	-88.84449951	42.258857	6	Line 61
Kishwaukee River	CP369-3.3	Chicago	-88.54038	42.26719172	6	Line 14
Kishwaukee River	CP369-4.2	Chicago	-88.5598261	42.26343771	6	Line 14
Kishwaukee River	CP369-6.4	Chicago	-88.58887312	42.26469105	6	Line 14
Kishwaukee River	CP369-7.9	Chicago	-88.60844196	42.2654553	6	Line 14
Kishwaukee River	CP369-11.6	Chicago	-88.66470448	42.26593166	6	Line 14
Kishwaukee River	CP369-14.5	Chicago	-88.70545504	42.25639826	6	Line 14
Lily Cache Creek	CP420-2.0	Chicago	-88.16924533	41.63783359	2	Line 6A
Lily Cache Creek	CP420-3.1	Chicago	-88.1685486	41.60897264	2	Line 6A
Little Rock Creek	CP415-4.5	Chicago	-88.53814647	41.63516129	3	Line 14
Little Rock Creek	CP415-1.9	Chicago	-88.57337089	41.64606294	3	Line 14
Little Rock Creek	CP415-5.8	Chicago	-88.55216815	41.62199607	3	Line 14
Marley Creek	CP438-1.6	Chicago	-87.91709644	41.55662263	4	Line 6A
Marley Creek	CP438-2.5	Chicago	-87.92884556	41.54875556	4	Line 6A
Marley Creek	CP438-3.5X	Chicago	-87.93382069	41.54157062	4	Line 6A
Marley Creek	CP438-4.6	Chicago	-87.93757376	41.53196925	4	Line 6A
Piscasaw Creek	CP356-10.5	Chicago	-88.81760895	42.262493	6	Line 61
Piscasaw Creek	CP356-12.6	Chicago	-88.84651427	42.256853	6	Line 61
Piscasaw Creek	CP356-19.3	Chicago	-88.93015182	42.253803	6	Line 61
Piscasaw Creek	CP356-5.5	Chicago	-88.80647028	42.309018	6	Line 61
Piscasaw Creek	CP356-7.5	Chicago	-88.81029584	42.291518	6	Line 61
Piscasaw Creek	CP356-9.0	Chicago	-88.80996236	42.276877	6	Line 61
Poplar Creek	CP388-3.6	Chicago	-88.27466911	42.01398648	1	Line 6A
Rock Run	CP441-4.7	Chicago	-88.2314672	41.43366048	1	Line 14,Line 6A
S Br. Kish MP50.61	CP374-12.2	Chicago	-88.93319374	42.137823	6	Line 61
S Br. Kish MP50.61	CP374-13.1	Chicago	-88.93972269	42.147962	6	Line 61
S Br. Kish MP50.61	CP374-15.9	Chicago	-88.95082025	42.180044	6	Line 61

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
S Br. Kish MP50.61	CP374-3.5	Chicago	-88.84179325	42.097178	6	Line 61
S Br. Kish MP50.61	CP374-5.5	Chicago	-88.86388521	42.096681	6	Line 61
S Br. Kish MP50.61	CP374-8.4	Chicago	-88.90056199	42.110264	6	Line 61
S Br. Kish MP67.8	CP390-1.8	Chicago	-88.78623326	41.892786	5	Line 61
S Br. Kish MP67.8	CP390-10.1	Chicago	-88.73687875	41.96666	5	Line 61
S Br. Kish MP67.8	CP390-14.1	Chicago	-88.72224631	41.996745	5	Line 61
S Br. Kish MP67.8	CP390-5.0	Chicago	-88.76623851	41.921884	5	Line 61
S Br. Kish MP67.8	CP390-8.2	Chicago	-88.741096	41.947122	5	Line 61
South Branch Kishwaukee River	CP371-3.4	Chicago	-88.55983609	42.26136262	2	Line 14
South Branch Kishwaukee River	CP371-5.0	Chicago	-88.54034567	42.24914538	2	Line 14
Thorn Creek	CP454-0.5	Chicago	-87.65446649	41.49143108	1	Line 6A,Line 64
Unnamed Creek	CP357-3.3	Chicago	-88.35204186	42.39315437	3	Line 6A
Unnamed Creek	CP357-4.6	Chicago	-88.34511375	42.40195689	3	Line 6A
Unnamed Creek	CP357-5.4	Chicago	-88.36950081	42.38537032	3	Line 6A
Waubonsie Creek	CP409-1.9	Chicago	-88.26074633	41.73746153	5	Line 6A
Waubonsie Creek	CP409-5.1	Chicago	-88.30732807	41.71213673	5	Line 6A
Waubonsie Creek	CP409-7.1	Chicago	-88.32488566	41.69307125	5	Line 6A
Waubonsie Creek	CP409-9.2	Chicago	-88.35569087	41.68521054	5	Line 6A
Waubonsie Creek	CP409-0.9	Chicago	-88.24870637	41.74694565	5	Line 6A
West Branch DuPage River	CP401-1.9	Chicago	-88.19835269	41.84218262	4	Line 6A
West Branch DuPage River	CP401-3.3	Chicago	-88.18514539	41.82835609	4	Line 6A
West Branch DuPage River	CP401-4.2	Chicago	-88.17245148	41.82091608	4	Line 6A
West Branch DuPage River	CP401-5.4	Chicago	-88.1868161	41.79605208	4	Line 6A
Plum Creek	CP462-1.5	Chicago	-87.50420685	41.51785124	4	Line 6A,Line 64,Line 78
Plum Creek	CP462-2.4	Chicago	-87.49702655	41.52916465	4	Line 6A,Line 64,Line 78
Plum Creek	CP462-3.1	Chicago	-87.49158916	41.5378932	4	Line 6A,Line 64,Line 78
Plum Creek	CP462-4.2	Chicago	-87.48156253	41.55200749	4	Line 6A,Line 64,Line 78
Salt Creek	CP484-2.7	Chicago	-87.12437983	41.56377037	3	Line 6B
Salt Creek	CP484-6.1	Chicago	-87.14405595	41.59660007	3	Line 6B
Salt Creek	CP484-8.7	Chicago	-87.1687111	41.61181464	3	Line 6B
Turkey Creek	CP471-2.7	Chicago	-87.3068661	41.51192614	2	Line 6B
Turkey Creek	CP471-4.4	Chicago	-87.28022381	41.5236767	2	Line 6B
Au Sable River	CP1562-1.2	Chicago	-84.29322146	44.67548	6	Line 5
Au Sable River	CP1562-10.0	Chicago	-84.18714843	44.668993	6	Line 5
Au Sable River	CP1562-10.8	Chicago	-84.17818846	44.669158	6	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Au Sable River	CP1562-14.1	Chicago	-84.13617948	44.661423	6	Line 5
Au Sable River	CP1562-3.1	Chicago	-84.27256097	44.675461	6	Line 5
Au Sable River	CP1562-5.5	Chicago	-84.24081033	44.682087	6	Line 5
Belle River	CP737-8.4	Chicago	-82.68404585	42.83108781	4	Line 6B
Belle River	CP737-13.7	Chicago	-82.64394513	42.81254797	4	Line 6B
Belle River	CP737-20.9	Chicago	-82.59496081	42.79972328	4	Line 6B
Belle River	CP737-27.5	Chicago	-82.54937147	42.7748885	4	Line 6B
Brandywine Creek	CP536-1.6	Chicago	-86.2398083	41.80981876	2	Line 6B
Brandywine Creek	CP536-2.9	Chicago	-86.25449417	41.80445911	2	Line 6B
Buckhorn Creek	CP689-3.1	Chicago	-83.62550252	42.78618858	3	Line 6B
Buckhorn Creek	CP689-4.0	Chicago	-83.63527754	42.79225227	3	Line 6B
Buckhorn Creek	CP689-5.4	Chicago	-83.64769833	42.79876009	3	Line 6B
Cass River	CP1669-9.9	Chicago	-83.65692165	43.32428414	2	Line 5
Cass River	CP1669-2.6	Chicago	-83.58189601	43.36964627	2	Line 5
Crapo Creek	CP1587-3.9	Chicago	-84.19983223	44.29157093	4	Line 5
Crapo Creek	CP1587-2.3	Chicago	-84.20350568	44.30492992	4	Line 5
Crapo Creek	CP1587-5.9	Chicago	-84.20788728	44.27740968	4	Line 5
Crapo Creek	CP1587-7.8	Chicago	-84.20529228	44.26007102	4	Line 5
East Branch Big Creek	CP1556-7.5	Chicago	-84.40915188	44.71559769	3	Line 5
East Branch Big Creek	CP1556-10.0	Chicago	-84.41135897	44.69754997	3	Line 5
East Branch Big Creek	CP1556-3.7	Chicago	-84.38010271	44.73899232	3	Line 5
Grand River	CP634-3.4	Chicago	-84.55243518	42.41579471	7	Line 6B
Grand River	CP634-6.1	Chicago	-84.56024994	42.43920616	7	Line 6B
Grand River	CP634-8.5	Chicago	-84.56829505	42.46570044	7	Line 6B
Grand River	CP634-6.4	Chicago	-84.55768966	42.441974	7	Line 6B
Grand River	CP634-10.4	Chicago	-84.5818585	42.48272182	7	Line 6B
Grand River	CP634-0.3	Chicago	-84.54188668	42.39134786	7	Line 6B
Grand River	CP634--3.9	Chicago	-84.48953022	42.39605232	7	Line 6B
Indian Creek	CP1688-4.7	Chicago	-83.27053068	43.25092291	4	Line 5
Indian Creek	CP1688-8.0	Chicago	-83.29308207	43.2363072	4	Line 5
Indian Creek	CP1688-9.7	Chicago	-83.30058232	43.22388169	4	Line 5
Indian Creek	CP1688-13.6	Chicago	-83.32121907	43.20447224	4	Line 5
Kalamazoo River	CP611-1.3	Chicago	-84.95135356	42.261385	37	Line 6B
Kalamazoo River	CP611-1.6	Chicago	-84.9559976	42.262514	37	Line 6B
Kalamazoo River	CP611-11.1	Chicago	-85.11108577	42.288606	37	Line 6B

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Kalamazoo River	CP611-11.4	Chicago	-85.11498422	42.290215	37	Line 6B
Kalamazoo River	CP611-11.9	Chicago	-85.12400708	42.293341	37	Line 6B
Kalamazoo River	CP611-13.3	Chicago	-85.13955362	42.303749	37	Line 6B
Kalamazoo River	CP611-14.1	Chicago	-85.14573784	42.307929	37	Line 6B
Kalamazoo River	CP611-14.6	Chicago	-85.15057418	42.302078	37	Line 6B
Kalamazoo River	CP611-15.1	Chicago	-85.15970004	42.29879	37	Line 6B
Kalamazoo River	CP611-15.3	Chicago	-85.16411444	42.298794	37	Line 6B
Kalamazoo River	CP611-16.8	Chicago	-85.18310522	42.304756	37	Line 6B
Kalamazoo River	CP611-17.4	Chicago	-85.1873792	42.310572	37	Line 6B
Kalamazoo River	CP611-19.6	Chicago	-85.21257342	42.330971	37	Line 6B
Kalamazoo River	CP611-20.1	Chicago	-85.21789326	42.334771	37	Line 6B
Kalamazoo River	CP611-20.7	Chicago	-85.23052218	42.337361	37	Line 6B
Kalamazoo River	CP611-21.0	Chicago	-85.23562704	42.339143	37	Line 6B
Kalamazoo River	CP611-21.2	Chicago	-85.23957311	42.341027	37	Line 6B
Kalamazoo River	CP611-21.4	Chicago	-85.24214404	42.343758	37	Line 6B
Kalamazoo River	CP611-22.5	Chicago	-85.26268229	42.346276	37	Line 6B
Kalamazoo River	CP611-23.3	Chicago	-85.2753427	42.350804	37	Line 6B
Kalamazoo River	CP611-26.6	Chicago	-85.30289998	42.350977	37	Line 6B
Kalamazoo River	CP611-28.9	Chicago	-85.3300441	42.347956	37	Line 6B
Kalamazoo River	CP611-30.2	Chicago	-85.33652084	42.338055	37	Line 6B
Kalamazoo River	CP611-30.8	Chicago	-85.3452939	42.334798	37	Line 6B
Kalamazoo River	CP611-31.3	Chicago	-85.35306377	42.3318	37	Line 6B
Kalamazoo River	CP611-32.0	Chicago	-85.35803105	42.324175	37	Line 6B
Kalamazoo River	CP611-37.1	Chicago	-85.41287104	42.284726	37	Line 6B
Kalamazoo River	CP611-38.5	Chicago	-85.42881927	42.280227	37	Line 6B
Kalamazoo River	CP611-39.8	Chicago	-85.45184539	42.278134	37	Line 6B
Kalamazoo River	CP611-4.3	Chicago	-84.99853607	42.258338	37	Line 6B
Kalamazoo River	CP611-40.6	Chicago	-85.46614567	42.282532	37	Line 6B
Kalamazoo River	CP611-41.9	Chicago	-85.49149476	42.283929	37	Line 6B
Kalamazoo River	CP611-6.8	Chicago	-85.04320081	42.261477	37	Line 6B
Kalamazoo River	CP611-7.1	Chicago	-85.04758775	42.265033	37	Line 6B
Kalamazoo River	CP611-7.4	Chicago	-85.05394464	42.266257	37	Line 6B
Kalamazoo River	CP611-7.8	Chicago	-85.06075016	42.269929	37	Line 6B
Kalamazoo River	CP611-9.4	Chicago	-85.08523293	42.275712	37	Line 6B
Kawkawlin River	CP1638-4.4	Chicago	-83.9485765	43.6505028	4	Line 5

Vendor Provided

WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Kawkawlin River	CP1638-2.4	Chicago	-83.97554068	43.63900921	4	Line 5
Kawkawlin River	CP1638-6.6	Chicago	-83.91309214	43.64348695	4	Line 5
Kawkawlin River	CP1638-7.6	Chicago	-83.89725178	43.65204861	4	Line 5
Middle Branch Cedar River	CP662-4.2	Chicago	-84.08106844	42.64299844	4	Line 6B
Middle Branch Cedar River	CP662-2.0	Chicago	-84.08071258	42.61381784	4	Line 6B
Middle Branch Cedar River	CP662-5.2	Chicago	-84.07947783	42.65529648	4	Line 6B
Middle Branch Cedar River	CP662-7.1	Chicago	-84.0938674	42.67693708	4	Line 6B
North Branch Clinton River	CP723-9.8	Chicago	-82.96233153	42.79526093	7	Line 6B
North Branch Clinton River	CP723-14.2	Chicago	-82.92830737	42.76668092	7	Line 6B
North Branch Clinton River	CP723-16.6	Chicago	-82.90657274	42.75441557	7	Line 6B
North Branch Clinton River	CP723-17.4	Chicago	-82.9065381	42.74658891	7	Line 6B
North Branch Clinton River	CP723-21.7	Chicago	-82.90451044	42.71713348	7	Line 6B
North Branch Kawkawlin River	CP1631-4.6	Chicago	-83.97018918	43.66747794	7	Line 5
North Branch Kawkawlin River	CP1631-5.8	Chicago	-83.96161487	43.65591587	7	Line 5
North Ore Creek	CP679-2.2	Chicago	-83.79490151	42.72507868	4	Line 6B
North Ore Creek	CP679-3.1	Chicago	-83.79701634	42.73575807	4	Line 6B
North Ore Creek	CP679-4.4	Chicago	-83.80459974	42.75055251	4	Line 6B
North Ore Creek	CP679-0.8	Chicago	-83.78417208	42.70759427	4	Line 6B
Pinconning River	CP1621-1.7	Chicago	-84.00612411	43.84402813	5	Line 5
Pinconning River	CP1621-3.2	Chicago	-83.98611893	43.85112847	5	Line 5
Pinconning River	CP1621-6.4	Chicago	-83.94596841	43.85312691	5	Line 5
Pinconning River	CP1621-5.3	Chicago	-83.95921697	43.8608014	5	Line 5
Pinconning River	CP1621-7.8	Chicago	-83.92706145	43.84710348	5	Line 5
Pine River	CP1718-8.3	Chicago	-82.65293571	43.02169949	10	Line 5
Pine River	CP1718-10.5	Chicago	-82.63253087	43.01130316	10	Line 5
Pine River	CP1718-13.6	Chicago	-82.61300887	42.99122254	10	Line 5
Pine River	CP1718-16.3	Chicago	-82.61944185	42.96894661	10	Line 5
Pine River	CP1718-18.9	Chicago	-82.59395397	42.96178162	10	Line 5
Pine River	CP1718-21.9	Chicago	-82.56701284	42.94742102	10	Line 5
Pine River	CP1718-24.4	Chicago	-82.55479781	42.93360862	10	Line 5
Pine River	CP1718-26.2	Chicago	-82.5586253	42.91882468	10	Line 5
Pine River	CP1718-30.3	Chicago	-82.56918908	42.88894534	10	Line 5
Pine River	CP1718-31.5	Chicago	-82.56772889	42.8803917	10	Line 5
Pine River	CP745-5.7	Chicago	-82.53901188	42.83821262	5	Line 5,Line 6B
Pine River	CP745-8.7	Chicago	-82.5177884	42.82284389	5	Line 5,Line 6B

APPENDIX D

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Pine River	CP745-13.3	Chicago	-82.49875747	42.81309541	5	Line 5,Line 6B
Pine River	CP745-3.7	Chicago	-82.53806298	42.85853092	5	Line 5,Line 6B
Pine River	CP745-1.1	Chicago	-82.55774115	42.87179014	5	Line 5,Line 6B
Portage River	CP577-2.8	Chicago	-85.54783509	42.01455404	3	Line 6B
Portage River	CP577-4.3	Chicago	-85.56719505	42.00818857	3	Line 6B
Portage River	CP577-5.9	Chicago	-85.58505037	41.99849792	3	Line 6B
Quanicassee River	CP1655-7.1	Chicago	-83.68054169	43.58460111	4	Line 5
Quanicassee River	CP1655-6.5	Chicago	-83.68762641	43.57663818	4	Line 5
Quanicassee River	CP1655-3.1	Chicago	-83.71662857	43.53681877	4	Line 5
Quanicassee River	CP1652-3.4	Chicago	-83.72416747	43.53669298	4	Line 5
Red Cedar River	CP665-2.0	Chicago	-84.03267134	42.63572306	3	Line 6B
Red Cedar River	CP665-3.3	Chicago	-84.05291501	42.6447796	3	Line 6B
Red Cedar River	CP665-4.4	Chicago	-84.07234418	42.64173222	3	Line 6B
Rocky River	CP570-4.2	Chicago	-85.6475002	41.97012968	4	Line 6B
Rocky River	CP570-6.0	Chicago	-85.64384261	41.95439917	4	Line 6B
Rocky River	CP570-7.0N	Chicago	-85.63329235	41.94272975	4	Line 6B
Rocky River	CP570-7.1S	Chicago	-85.63349354	41.94125919	4	Line 6B
Saganing Creek	CP1616-6.5	Chicago	-83.98630522	43.92508724	5	Line 5
Saganing Creek	CP1616-4.7	Chicago	-84.00592411	43.91584023	5	Line 5
Saganing Creek	CP1616-10.9	Chicago	-83.93650534	43.93417896	5	Line 5
Saganing Creek	CP1616-13.1	Chicago	-83.91094342	43.92815394	5	Line 5
Saganing Creek	CP1616-8.3	Chicago	-83.96693083	43.9265633	5	Line 5
Saginaw River	CP1645-3.2	Chicago	-83.89482987	43.597894	3	Line 5
Saginaw River	CP1645-4.9	Chicago	-83.87160556	43.614641	3	Line 5
Saginaw River	CP1645-8.0	Chicago	-83.85135126	43.640361	3	Line 5
Shiawassee River	CP691-0.0	Chicago	-83.60397629	42.78122448	1	Line 6B
Shiawassee River South Branch	CP668-5.6	Chicago	-83.98226039	42.70886496	5	Line 6B
Shiawassee River South Branch	CP668-8.0	Chicago	-83.96841867	42.72816783	5	Line 6B
Shiawassee River South Branch	CP668-13.3	Chicago	-83.91103627	42.76112292	5	Line 6B
Shiawassee River South Branch	CP668-14.9	Chicago	-83.91089521	42.78106143	5	Line 6B
Shiawassee River South Branch	CP668-21.6	Chicago	-83.94271742	42.81793678	5	Line 6B
South Branch Flint River	CP709-6.7	Chicago	-83.26446885	42.91335189	5	Line 6B
South Branch Flint River	CP709-9.4	Chicago	-83.24435734	42.92844881	5	Line 6B
South Branch Flint River	CP709-11.5	Chicago	-83.22313974	42.92816338	5	Line 6B
South Branch Flint River	CP709-14.2	Chicago	-83.22415075	42.94927329	5	Line 6B

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
South Branch Flint River	CP709-18.2	Chicago	-83.24604251	42.9722098	5	Line 6B
South Branch Rice Creek	CP618-2.9	Chicago	-84.86273399	42.29702385	6	Line 6B
South Branch Rice Creek	CP618-4.3	Chicago	-84.8872409	42.29512987	6	Line 6B
South Branch Rice Creek	CP618-5.3	Chicago	-84.90697415	42.29296017	6	Line 6B
South Branch Rice Creek	CP618-7.4	Chicago	-84.93071255	42.27614818	6	Line 6B
South Branch Rice Creek	CP618-8.9	Chicago	-84.95414794	42.26731422	6	Line 6B
South Branch Rice Creek	CP618-9.3	Chicago	-84.96050554	42.26557099	6	Line 6B
Squaconning Creek	CP1643-3.9	Chicago	-83.90272588	43.5809915	4	Line 5
Squaconning Creek	CP1643-2.0	Chicago	-83.91560781	43.55725186	4	Line 5
Squaconning Creek	CP1643-2.7E	Chicago	-83.9046306	43.56583283	4	Line 5
Squaconning Creek	CP1643-2.7	Chicago	-83.91028027	43.56581592	4	Line 5
St. Clair River	CP1735-0.7	Chicago	-82.46660062	42.906291	15	Line 5,Line 6B
St. Clair River	CP1735-15.4	Chicago	-82.50048841	42.702907	15	Line 5,Line 6B
St. Clair River	CP1735-19.3	Chicago	-82.51401221	42.647006	15	Line 5,Line 6B
St. Clair River	CP1735-6.7	Chicago	-82.4856649	42.820623	15	Line 5,Line 6B
St. Clair River	CP1735-30.1	Chicago	-82.64085384	42.55596811	15	Line 5,Line 6B
St. Clair River	CP1735-26.1	Chicago	-82.59714309	42.61319528	15	Line 5,Line 6B
St. Clair River	CP1735-30.0	Chicago	-82.65323365	42.57650922	15	Line 5,Line 6B
St. Clair River	CP1735-27.9	Chicago	-82.64707246	42.62735115	15	Line 5,Line 6B
St. Clair River	CP1735-24.0	Chicago	-82.56096182	42.6183996	15	Line 5,Line 6B
St. Clair River	CP1735-22.0	Chicago	-82.53434678	42.61375147	15	Line 5,Line 6B
St. Clair River	CP1735-14.2	Chicago	-82.48968137	42.71933348	15	Line 5,Line 6B
St. Clair River	CP1735-8.5	Chicago	-82.4791623	42.79417209	15	Line 5,Line 6B
St. Clair River	CP1735-6.3	Chicago	-82.48496594	42.82656009	15	Line 5,Line 6B
St. Clair River	CP1735-23.4	Chicago	-82.5532628	42.60805472	15	Line 5,Line 6B
St. Clair River	CP1735-30.4	Chicago	-82.65797414	42.57457865	15	Line 5,Line 6B
St. Joseph River	CP533-11.2	Chicago	-86.34977105	41.8390507	5	Line 6B
St. Joseph River	CP533-2.7	Chicago	-86.25740713	41.82601354	5	Line 6B
St. Joseph River	CP533-21.0	Chicago	-86.33075682	41.94309854	5	Line 6B
St. Joseph River	CP533-7.0	Chicago	-86.29115	41.85924	5	Line 6B
St. Joseph River	CP533-2.0	Chicago	-86.26028064	41.81579332	5	Line 6B
West Branch Big Creek	CP1566-2.8	Chicago	-84.26112082	44.63773959	2	Line 5
West Branch Big Creek	CP1566-4.5	Chicago	-84.25866162	44.65231043	2	Line 5
West Branch Rifle River	CP1592-6.7	Chicago	-84.12591761	44.25483358	3	Line 5
West Branch Rifle River	CP1592-20.5	Chicago	-84.08281709	44.19926627	3	Line 5

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
West Branch Rifle River	CP1592-2.6	Chicago	-84.16418947	44.24799299	3	Line 5
Buffalo River	CP1951-6.4	Chicago	-78.86840204	42.866041	2	Line 10
Buffalo River	CP1951-7.8	Chicago	-78.88565638	42.879337	2	Line 10
Niagara River - East Branch	CP1933-2.4	Chicago	-78.89191824	43.016386	4	Line 10
Niagara River - East Branch	CP1933-21.9	Chicago	-79.04951552	43.174212	4	Line 10
Niagara River - East Branch	CP1933-28.0	Chicago	-79.05925103	43.260922	4	Line 10
Niagara River - East Branch	CP1933-7.8	Chicago	-78.95350005	43.075951	4	Line 10
Niagara River - West Branch	CP1928-15.3	Chicago	-79.04953185	43.174227	4	Line 10
Niagara River - West Branch	CP1928-21.6	Chicago	-79.05925103	43.260922	4	Line 10
Niagara River - West Branch	CP1928-4.0	Chicago	-78.99734478	43.05308	4	Line 10
Niagara River - West Branch	CP1928-5.0	Chicago	-78.95349999	43.075951	4	Line 10
Big Weirgor Creek	CP85-25.3E	Chicago	-91.28968159	45.391996	4	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-31.9E	Chicago	-91.32568835	45.33865	4	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-37.5B	Chicago	-91.23727199	45.297518	4	Line 6A,Line 14,Line 61
Big Weirgor Creek	CP85-39.5N	Chicago	-91.19851761	45.304691	4	Line 6A,Line 14,Line 61
Chippewa River	CP88-17.8E	Chicago	-91.29084959	45.391804	9	Line 6A,Line 14,Line 61
Chippewa River	CP88-24.4E	Chicago	-91.32713687	45.338511	9	Line 6A,Line 14,Line 61
Chippewa River	CP88-30.0B	Chicago	-91.23727199	45.297518	9	Line 6A,Line 14,Line 61
Chippewa River	CP88-32.0N	Chicago	-91.19843087	45.304689	9	Line 6A,Line 14,Line 61
Chippewa River	CP88-36.7N	Chicago	-91.15321134	45.272014	9	Line 6A,Line 14,Line 61
Chippewa River	CP88-38.6W	Chicago	-91.15744885	45.24418	9	Line 6A,Line 14,Line 61
Chippewa River	CP88-39.5W	Chicago	-91.15930232	45.234853	9	Line 6A,Line 14,Line 61
Chippewa River	CP88-39.8S	Chicago	-91.14259708	45.23478	9	Line 6A,Line 14,Line 61
Chippewa River	CP88-40.4N	Chicago	-91.13061363	45.234876	9	Line 6A,Line 14,Line 61
Crawfish River	CP279-17.3	Chicago	-89.01373707	43.34227	4	Line 6A,Line 14,Line 61
Crawfish River	CP279-21.4	Chicago	-89.01346638	43.31398	4	Line 6A,Line 14,Line 61
Crawfish River	CP279-5.9	Chicago	-89.08904075	43.354235	4	Line 6A,Line 14,Line 61
Crawfish River	CP279-9.7	Chicago	-89.05624196	43.358022	4	Line 6A,Line 14,Line 61
Eau Claire River North Fork	CP132-10.5	Chicago	-90.81833455	45.031579	7	Line 6A,Line 14,Line 61
Eau Claire River North Fork	CP132-13.5	Chicago	-90.82575982	45.002328	7	Line 6A,Line 14,Line 61
Eau Claire River North Fork	CP132-19.3	Chicago	-90.85315219	44.950024	7	Line 6A,Line 14,Line 61
Eau Claire River North Fork	CP132-2.7	Chicago	-90.73990008	45.048584	7	Line 6A,Line 14,Line 61
Eau Claire River North Fork	CP132-24.4	Chicago	-90.84791009	44.900841	7	Line 6A,Line 14,Line 61
Eau Claire River North Fork	CP132-33.2	Chicago	-90.87898214	44.828138	7	Line 6A,Line 14,Line 61
Eau Claire River North Fork	CP132-5.5	Chicago	-90.7702303	45.046087	7	Line 6A,Line 14,Line 61

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Flambeau River	CP100-2.8	Chicago	-91.16093724	45.429103	4	Line 6A,Line 14,Line 61
Flambeau River	CP100-3.4	Chicago	-91.16514744	45.421898	4	Line 6A,Line 14,Line 61
Flambeau River	CP100-3.7	Chicago	-91.16925848	45.418127	4	Line 6A,Line 14,Line 61
Flambeau River	CP100-7.0	Chicago	-91.21677568	45.411902	4	Line 6A,Line 14,Line 61
Fox River	CP253-0.4	Chicago	-89.42476381	43.636179	6	Line 6A,Line 14,Line 61
Fox River	CP253-11.0	Chicago	-89.4643544	43.716464	6	Line 6A,Line 14,Line 61
Fox River	CP253-3.8	Chicago	-89.39567981	43.671685	6	Line 6A,Line 14,Line 61
Fox River	CP261-2.1	Chicago	-89.35395932	43.544178	6	Line 6A,Line 14,Line 61
Fox River	CP261-3.7	Chicago	-89.38554669	43.541403	6	Line 6A,Line 14,Line 61
Fox River	CP253-7.6	Chicago	-89.42593638	43.69711906	6	Line 6A,Line 14,Line 61
Jump River	CP111-2.4	Chicago	-90.99685758	45.304997	4	Line 6A,Line 14,Line 61
Jump River	CP111-3.1	Chicago	-91.00867717	45.301438	4	Line 6A,Line 14,Line 61
Jump River	CP111-8.5	Chicago	-91.08989228	45.281707	4	Line 6A,Line 14,Line 61
Jump River	CP111-9.5	Chicago	-91.1095832	45.273894	4	Line 6A,Line 14,Line 61
Little Jump River	CP110-1.4	Chicago	-90.99685758	45.304997	4	Line 6A,Line 14,Line 61
Little Jump River	CP110-2.1	Chicago	-91.00867717	45.301438	4	Line 6A,Line 14,Line 61
Little Jump River	CP110-7.4	Chicago	-91.08989228	45.281707	4	Line 6A,Line 14,Line 61
Little Jump River	CP110-8.6	Chicago	-91.1095832	45.273894	4	Line 6A,Line 14,Line 61
Maunesha River	CP291-0.8	Chicago	-89.02931896	43.182708	4	Line 6A,Line 14,Line 61
Maunesha River	CP291-10.7	Chicago	-88.94550641	43.219323	4	Line 6A,Line 14,Line 61
Maunesha River	CP291-14.4	Chicago	-88.88765654	43.234594	4	Line 6A,Line 14,Line 61
Maunesha River	CP291-5.9	Chicago	-88.98342281	43.18911	4	Line 6A,Line 14,Line 61
Popple River	CP144-11.0	Chicago	-90.61268868	44.821029	5	Line 6A,Line 14,Line 61
Popple River	CP144-14.2	Chicago	-90.60642911	44.781907	5	Line 6A,Line 14,Line 61
Popple River	CP144-17.4	Chicago	-90.62241075	44.741608	5	Line 6A,Line 14,Line 61
Popple River	CP144-24.9	Chicago	-90.62720443	44.654563	5	Line 6A,Line 14,Line 61
Popple River	CP144-4.0	Chicago	-90.57152757	44.886001	5	Line 6A,Line 14,Line 61
Rock River	CP313-0.7	Chicago	-88.87695336	42.900044	3	Line 6A,Line 14,Line 61
Rock River	CP313-2.2	Chicago	-88.90477318	42.895343	3	Line 6A,Line 14,Line 61
Rock River	CP313-2.8	Chicago	-88.91403947	42.892138	3	Line 6A,Line 14,Line 61
Thornapple River	CP94-13.6E	Chicago	-91.2896311	45.391895	4	Line 6A,Line 14,Line 61
Thornapple River	CP94-20.0E	Chicago	-91.3268417	45.339053	4	Line 6A,Line 14,Line 61
Thornapple River	CP94-26.1B	Chicago	-91.23734924	45.297463	4	Line 6A,Line 14,Line 61
Thornapple River	CP94-28.1N	Chicago	-91.19822976	45.304857	4	Line 6A,Line 14,Line 61
Turtle Creek	CP337.3-17.5	Chicago	-89.01136937	42.511748	5	Line 6A,Line 14,Line 61

Vendor Provided WaterCrossing	ControlPointID	Region	Longitude	Latitude	Control Points in Series	Upstream Lakehead Pipelines
Turtle Creek	CP337.3-2.2	Chicago	-88.82902938	42.597515	5	Line 6A,Line 14,Line 61
Turtle Creek	CP337.3-4.0	Chicago	-88.86339495	42.596391	5	Line 6A,Line 14,Line 61
Turtle Creek	CP337.3-7.8	Chicago	-88.92317817	42.580817	5	Line 6A,Line 14,Line 61
Turtle Creek	CP337.3-9.0	Chicago	-88.94053924	42.573171	5	Line 6A,Line 14,Line 61
Wisconsin River	CP201-1.5	Chicago	-89.90933978	44.279308	3	Line 6A,Line 14,Line 61
Wisconsin River	CP201-2.0	Chicago	-89.91648966	44.271696	3	Line 6A,Line 14,Line 61
Wisconsin River	CP201-5.2	Chicago	-89.9052071	44.237712	3	Line 6A,Line 14,Line 61
Yellow River	CP124-17.3	Chicago	-91.01019863	45.093363	5	Line 6A,Line 14,Line 61
Yellow River	CP124-21.5	Chicago	-91.03447623	45.045194	5	Line 6A,Line 14,Line 61
Yellow River	CP124-24.9	Chicago	-91.0452122	45.017436	5	Line 6A,Line 14,Line 61
Yellow River	CP124-3.3	Chicago	-90.85516389	45.141211	5	Line 6A,Line 14,Line 61
Yellow River	CP124-6.1	Chicago	-90.89532425	45.126987	5	Line 6A,Line 14,Line 61
Yellow River East Branch	CP169-15.8	Chicago	-90.14026054	44.518612	5	Line 6A,Line 14,Line 61
Yellow River East Branch	CP169-2.6	Chicago	-90.25307947	44.634646	5	Line 6A,Line 14,Line 61
Yellow River East Branch	CP169-21.8	Chicago	-90.1500689	44.45346	5	Line 6A,Line 14,Line 61
Yellow River East Branch	CP169-27.2	Chicago	-90.11950648	44.393296	5	Line 6A,Line 14,Line 61
Yellow River East Branch	CP169-5.5	Chicago	-90.22388425	44.611685	5	Line 6A,Line 14,Line 61

APPENDIX E

Upstream and Downstream Valve Sites		**GPS Location of Control Point**	**Latitude:**	*Location of CP in Decimals (NAD83)*
			Longitude:	*Location of CP in Decimals (NAD83)*
Upstream Distance to Pipeline	*Name of Line Crossing with MP/KP Marker and distance in Miles/kilometers to Control Point*	**Upstream Control Point**		
Access Requirements	*E.g. Road, Parking, Helicopter/Aerial access (any obstacles e.g. power lines)*	**Downstream Control Point**		
Objective	*Primary Strategy of the Control Point (Containment & Recovery/Collection , Deflection/Exclusion)*			
Resources at Risk				
Watercourse Description and Navigability	*Include: waterbody name, flow direction, velocity (best case and worst case if known), width range (various conditions) underwater infrastructure and above-water infrastructure*			
Staging Area	*Location if applicable*	**Boat Launch or Marina**	*Location if applicable*	
Safety Concerns and Communications				
Implementation				
Closest Equipment Cache to this Control Point	*Name of Equipment cache and where applicable the response time in hours*			
Required Contact Numbers	*If publically available, Private Landowner/Business Owner Information*			
Other Comments				

Date Strategy Updated:
Insert date as dd-mmm-yyyy

Date Strategy Site Visited:
Insert date

Driving Directions:

- *Include starting point*
- *Text description that includes the entry point for vehicles to gain access to the CP*

Recommended Equipment	
Quantity	**Description**
number	*e.g. type and size of boom*
	e.g. type and size of boat
Equipment Notes	

Recommended Personnel	
Number	**Description**

Map of Driving Directions

- *Insert map*

Tactical Deployment Diagram

- *Insert Tactical Diagram(s) with Instructional Bubbles – additional pages and photos if required.*
- *Include zoomed out picture with placement of equipment AND zoomed in tactical picture to show specific set-up*
- *Include anchor point locations for boom where applicable*

Photo 1

Photo 2

Append photos

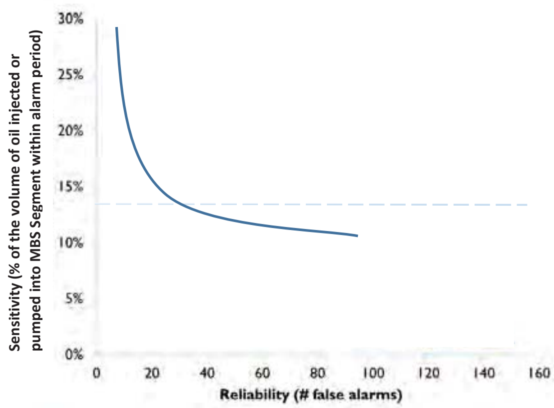
APPENDIX F

Appendix F

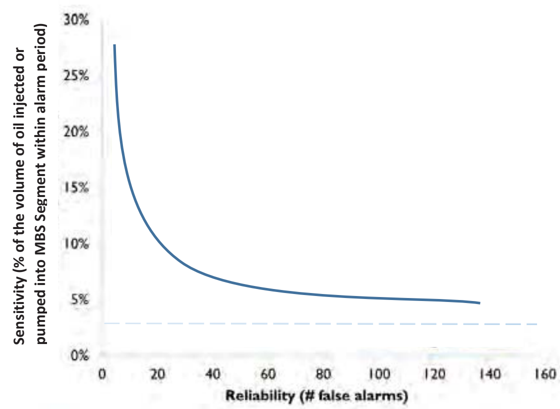
Illustration of S-R Performance Curves

> Note: In the hypothetical data set below for New US Line 3, all of the S-R Performance curves would be compliant with the design and construction targets in Paragraph 89.a of the Consent Decree, except for the S-R Performance Curve for the 2-Hour MBS Alarm.

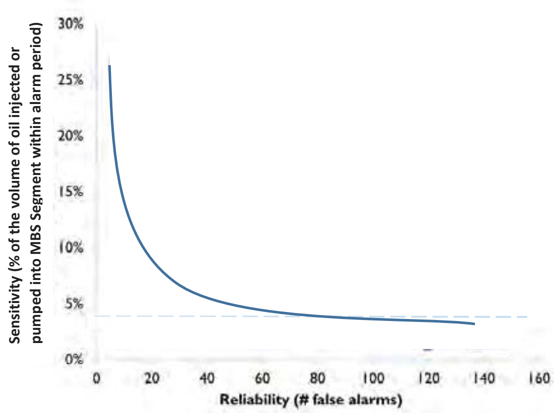
5-Minute MBS Alarm



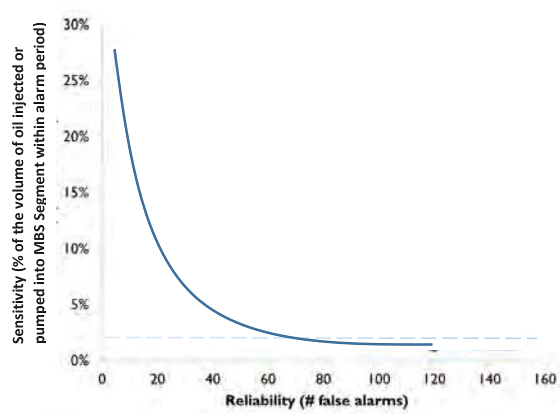
2-Hour MBS Alarm



20-Minute MBS Alarm



24-hour MBS Alarm



KEY

S-R Performance Curve

Design and Construction Target